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EDITOR

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No. 1

CANADIAN MEDICAL ASSOCIATION

ONTARIO MEDICAL ASSOCIATION

CONJOINED ANNUAL MEETING

Ottawa, June 17-18-19-20, 1924

The preliminary sessions for the next annual meeting which is to be held at Ottawa in 1924, have been held and organization is well under way under the leadership of Drs. J. F. Kidd and J. F. Argue of Ottawa. The dates selected are June 17th—20th.

The committees have organized and a most suitable location has been found with ample accommodation in the new Collegiate Building on Carling Avenue West, which has just recently been completed, and is up-to-date in all respects. The chairman has succeeded in surrounding himself by a painstaking and earnest committee, and its various branches are already organized and each one has held its preliminary meeting.

As is well known, the meeting of 1924 being held in Ottawa is a conjoined meeting of the Canadian and Ontario Medical Associations. For the information of the profession, and to facilitate inquiries and correspondence, we give

herein the personnel of the committees in charge:—

<i>President, Canadian Medical Association</i>	Dr. J. F. Kidd.
<i>President, Ontario Medical Association</i>	Dr. J. F. Argue.
<i>Chairman, Local Executive</i>	Dr. I. G. Smith.
<i>Secretary, Local Executive</i>	Dr. J. A. Dobbie.
<i>Advisory Committee</i>	Dr. R. W. Powell, Dr. H. B. Small, Dr. J. L. Chabot and Dr. R. E. Webster.
<i>Section on Surgery, Chairman</i> ...	Dr. D. T. Smith.
<i>Section on Medicine, Chairman</i> ..	Dr. W. S. Lyman.
<i>Section on Obstetrics and Gynaecology, Chairman</i>	Dr. A. T. Shillington.
<i>Section on Pathology and Laboratory Methods, Chairman</i> ...	Dr. J. H. Laidlaw.
<i>Section on Eye, Ear, Nose and Throat, Chairman</i>	Dr. J. D. Courtenay.
<i>Section on Paediatrics, Chairman</i>	Dr. R. F. Fligg.
<i>Publicity Committee, Chairman</i> ..	Dr. W. E. Crain.
<i>Exhibits Committee, Chairman</i> ..	Dr. D. M. Robertson.
<i>Entertainment Committee, Chairman</i>	Dr. R. E. Valin.
<i>Arrangements Committee, Chairman</i>	Dr. C. H. Brown.
<i>Finance Committee, Chairman</i> ...	Dr. A. S. McElroy.
<i>Transportation Committee, Chairman</i>	Dr. F. W. McKinnon.
<i>Ladies Committee,</i>	Mrs. J. F. Kidd and Mrs. J. F. Argue, with power to add.

PHYSIOLOGY AND CLINICAL MEDICINE

AN ADDRESS

By

Professor J. J. R. MACLEOD, M.B., F.R.C.S., F.R.S.

Delivered at the banquet given in his honour, Toronto, November 5th, 1923

By

DR. ROBERT I. NOBLE, M.D.

Remarks by DR. H. B. ANDERSON

PHYSIOLOGY, with its related sciences, is still and must always be the "Institutes of Medicine," the keystone of the arch of medical and surgical knowledge. It is the junction towards which converge the lines of the premedical sciences, and from which spread out those that run into the fields of clinical investigation and practice, and the teacher of physiology is the signal man. He it is who must direct the traffic along the various lines, and his responsibility is great, because of the constant changes in their relative importance. Medical as well as surgical knowledge is, after all, but an application of the basic sciences of physics, chemistry and biology to the alleviation of human suffering; it is an application, however, which requires great judgment and skill and a sound knowledge of human psychology.

How, then, may the teacher of physiology guide his students so as to fit them for medical and surgical practice? He must endeavour not only to make them familiar with the fundamental facts upon which the science depends, but, and most important of all, he must train their minds to think, let me say, physiologically, and to apply the methods of the worker in accurate science to the investigation of the symptoms of disease.

There is sometimes a tendency to consider that research in medicine can be carried out only by a select few who are skilled in the use of elaborate methods of investigation, and that the general practitioner is unqualified and incompetent to do his part. The great object of the teacher of medical science should be to break down this false idea and in its stead to impress his students with the fact that in the varied experiences of general practice there exists a multitude of problems of disease that can never be elucidated unless they

are made the subject of investigation by minds trained to think independently and to detect the relationship between cause and effect. There are many problems which can never fall within the scope of the experimental laboratory, nor indeed of the hospital clinic; problems that are related to the premonitory stages of disease, not to the disease itself; problems that demand for their elucidation a skill that can be acquired only by experience backed by a trained scientific attitude of mind. In order that the practitioner may be prepared to engage in this work it is essential that an adequate proportion of his time, while a medical student, should be devoted to laboratory courses in the fundamental medical sciences and to the application of the principles which he there learns, to the investigation of disease.

My revered fellow countryman Sir James Mackenzie, whose institute for medical research at St. Andrew's I visited this summer, maintains that the future of medicine largely depends on work in the field of general practice, and there can be no doubt that, in general, he is correct. How other than through patient study by scientifically trained minds of such symptoms as those of pain and headache, of gastro-intestinal disease, of perverted metabolism, can we ever hope to understand their causes and thus, to learn how to treat them, and how are we to become acquainted with the incipient stages of malignant disease, of tuberculosis, or of diabetes, unless it be by life-long scientific observation on the part of the general practitioner? His training for this important work must be the aim and object of medical education; it must have its beginning in studies in the premedical sciences, undergo its development in those of the institutes of medicine, and reach its maturity in the hospital clinic and dispensary. It is a training based not so much

on experience as on investigation; it should be designed to prepare the mind to observe, and having observed to interpret correctly.

In the light of these remarks it may be of interest if I briefly scan the methods of teaching physiology at present in use in the more important medical schools of the English speaking world, and let me take first of all the University of Oxford. Owing to the restricted number of students the courses in physiology here conform strictly with the principles which we have been considering. The student devotes a large part of his time to work in the experimental laboratories, and he is required to conduct his experiments with great care and to prepare a report of the results which thus forms the basis of his physiological knowledge. He is advised at this stage to throw his textbooks aside and to read original papers pertaining to the problems on which he is working, these papers being selected with great care by the instructors. As this work is going on in the laboratory the student is also reading with his tutor and this work is done quite informally or, as Stephen Leacock has put it, "the tutor smokes at the student while discussing his reading with him." There are no systematic lectures in physiology although lectures are given on special subjects by various instructors on the staff. After the student has, in this informal fashion, built up a framework of knowledge of his subject he reviews the whole of it somewhat more systematically so as to prepare for examinations. Textbooks are not recommended in the earlier months of his instruction, and only to a limited extent in the later ones. On account of the small size of the class this more or less informal method of instruction is highly satisfactory in Oxford.

In Cambridge, where the classes are larger, although the same principles obtain as in Oxford, the instruction is somewhat more systematized. Here again, however, actual experimental work is its basis and the tutor guides the student's reading.

In London, with the exception of University College, instruction in physiology is still handicapped by the necessity of preparing the students for the examinations of the various licensing boards. This preparation is given in tutorial (cram) classes and there are also numerous more or less formal lectures by the head of the department. Practical classes are also held but they do not, as in Oxford, usually form the basis of the courses. Until the examination fetish is removed in London it does not seem likely that the

teaching in physiology could be much improved over what it is at present.

In the Scottish schools the methods of teaching are undergoing a fairly rapid change and are not alike in the different universities. In Glasgow, particularly, a decided step has been taken to emphasize the importance of laboratory instruction as the basis of the course. In this institution, indeed, the students do their laboratory work in experimental physiology before they attend lectures or other courses of didactic instruction.

Coming now to this continent we find in the States that there are many schools in which the laboratory instruction is very thoroughly carried out, the facilities for doing this being considerably greater than in the Old Country because of less interference by anti-vivisection legislation. A large amount of experimental work is done on mammals. On the whole, there is no doubt that the Oxford ideal is very closely approached by some of the best schools in the States. The chief criticism, I think, that could be made of the instruction here is the tendency to cram too many facts into it, to the neglect of general principles. There is a tendency to train the students to be technicians rather than thinkers.

In Canada we are in the position of being able to mould our curricula partly on the pattern of those of the Old Country and partly on those of the New. In the courses in Toronto the attempt is being made to make the experimental work the basis of instruction, by insisting that the students conduct their experiments to completion. In order that this may be done in the time allotted to the subject the experiments are considerably cut down in numbers from what they used to be, but they are carefully selected so that they proceed from the more simple to the more complex, illustrating at the same time, as far as possible, the fundamental principles of the subject. The attempt is made to get the student to realize that even the simplest experiment he does involves the use of the same methods of reasoning as are employed in the diagnosis of disease. Because of their comparative simplicity, the practical courses start with a few selected experiments on the frog and turtle. Being now familiar with the necessary technique, the student can now do a few selected experiments on anaesthetized animals and attend demonstrations at which more complicated experiments on this material are performed, and their results dis-

cussed. But a considerable part of the time at this stage is occupied by experiments on man himself, one student working on the other. He is impressed by the fact that observations made by the simplest means are of equal value with those made by complex instruments of precision. He is thoroughly drilled, for example, on the effects of muscular exercise and of deep breathing on the pulse, respiration, blood pressure and alveolar air; he devotes considerable time to pulse tracings, electrocardiographs, and he studies the cutaneous sensations. While this practical work is going on the student is also attending lectures designed to show him the bearing of the practical work so that he may thread the subject together. An important feature of the course is the tutorial classes in which small groups of students review their work under instructors, who, in the majority of cases are also attached to the various clinics and who therefore are familiar with physiology from the clinician's point of view. The majority of these instructors have all served for at least a year as full-time workers in the physiological laboratory and it is important for them, as well as for the student, that they should maintain their intimate contact with physiology by doing this work.

I hope you will pardon me for going into such detail on an occasion like this but I do so because so many times have I been asked as to what I thought a modern course in physiology should be and this seemed a good opportunity to reply to these questions.

Dr. H. B. Anderson in speaking to Dr. Macleod's toast said:

It was one of our host's happy inspirations to give this dinner in honour of Professor Macleod

on his return from across the Atlantic to his field of labour in the University of Toronto. Of the recent epoch-making discovery, brilliantly conceived by Dr. Banting and admirably worked out in the laboratories and hospitals of Toronto, it is superfluous for one to say anything further than to express the pride we feel as Canadians on a great achievement. Perhaps never in the long history of medicine has a discovery received such speedy and general recognition, and as Canadians we should take great pride in the fact that this great prize, the Nobel award, has been won by members of the Toronto Faculty. The development of the technical side of scientific work makes it impossible for the practitioner of this age to investigate disease after the manner of Hunter, Graves, Bright or Addison; collaboration with those trained in laboratory methods and technique has become essential to clinical progress, therefore we do not undervalue men with the ability of Professor Macleod. It is well for us also to remember that the value of scientific work cannot always be measured by its adaptability to immediate practical use. The work of Gaskell and Langley on the sympathetic nervous system remained for a quarter of a century before its application to the elucidation of the action of the endocrine glands and to the influence of the emotions in the causation of disease, illuminated the whole field of clinical medicine. While we are glad that the work of Banting, Macleod and their associates is of the practical kind that assists us in the control of a common disease and therefore its value is more quickly grasped, we will not fail to do honour to those on whose work other men build.

Influence of Ultraviolet Irradiation on Calcium Content of Blood Serum.—A study was made by Frank J. Novak, Jr., and Abraham R. Hollender, Chicago, of the calcium content of human blood serum in hay-fever, hyperesthetic rhinitis and the asthmas, the effect of calcium, thyroid and combined calcium-thyroid therapy in hay-fever, hyperesthetic rhinitis, and the asthmas, and of the influence of the mercury vapour quartz lamp (ultraviolet ray) in fixing the calcium content of the blood serum. They found that the ionic calcium content of the blood serum is invariably low in hyperesthetic

rhinitis. There are also certain cases of hay-fever and asthma which show a low calcium content. Calcium alone does not influence these conditions.

Calcium lactate combined with thyroid extract affords temporary relief in all cases of hyperesthetic rhinitis and in some cases of hay-fever and bronchial asthma. Exposures to the mercury vapour quartz light, together with the combined calcium-thyroid therapy, appears to fix permanently the ionic calcium content of the blood serum.—*Jour. Am. Med. Ass.*, Dec. 15, 1923.

TUBERCULOUS ULCERATION OF THE INTESTINES*

J. E. PRITCHARD, M.D.

*Assistant Superintendent, Manitoba Sanatorium, Ninette, Man.**A Clinical Study of Forty-Five Cases*

USUALLY it is with a diagnosis of pulmonary disease alone that a patient is sent to a sanatorium for treatment, but after careful investigation some complication is frequently found to be, in reality, the major lesion, and, indeed, often the immediate cause of breakdown. It should be kept in mind that in dealing with tuberculosis one is dealing with a general disease which may manifest itself in more than one organ. This is especially true when the lungs are involved. It is not the kidneys, nor the intestines, nor the lungs alone that are ill, but the man.

In the treatment of tuberculosis, intestinal involvement has come to be recognized as having an importance vastly greater than it had even ten years ago. The ulcerative type of intestinal tuberculosis is variously reported at post mortem in 50% to 90% of those dying with pulmonary tuberculosis. Of the two hundred and forty-five patients who were under treatment at the Manitoba Sanatorium on Dec. 22, 1922, fifty-seven or 23.2% were considered to have intestinal involvement, while twenty-five or 10.2% were suspected. In the past four years 37% of tuberculous patients admitted were suspected of intestinal ulceration, and of three hundred suspicious cases investigated 50% were found positive and 20% doubtful.

Until a comparatively few years ago intestinal tuberculosis was looked upon as a terminal condition. A diagnosis was avoided as long as possible to spare the unfortunate victim the inevitably bad prognosis. The work in recent years on this phase of the disease has proved that many cases can be treated successfully by sanatorium routine with the aid of surgery and light therapy. Needless to say the earlier the diagnosis the more successful the treatment. It is urgent, then, that cases be

studied closely in all aspects so that they can be recognized and brought under treatment at the earliest possible moment.

This paper reports a study of forty-five selected cases of tuberculosis under treatment in the Manitoba Sanatorium during 1922, in whom definite intestinal lesions were present. It was made with the purpose of ascertaining the earlier manifestation of this complication.

The onset of intestinal tuberculosis is very insidious. It is usually well established before the patient makes any complaint referable to the gastro-intestinal tract, or before he is at all alarmed over the slight abdominal symptoms that have persisted for some time. They are frequently explained as due to one dietary indiscretion or another, or are attributed to toxæmia from the lung lesion. While there is no doubt that general tuberculous toxæmia may be a cause of digestive disturbances, especially anorexia, it is certainly true that serious disturbances point to intestinal lesions.

Symptoms.

In all of these forty-five patients, pulmonary lesions were present. In thirty-nine, pulmonary symptoms preceded intestinal symptoms. In one there were no definite intestinal symptoms although the radiograph revealed a very marked filling defect. In the remaining five cases the general breakdown was coincident apparently with the onset of intestinal symptoms. In every case general symptoms such as loss of energy, or weight, or increase of nervous irritability were manifest before the onset of local symptoms.

Nervousness was an outstanding symptom in five cases and fairly marked in nineteen (42.4%). Nervousness we have found, as Archibald and Lawrason Brown have also, associated with intestinal involvement as one of

*This article was awarded the Annual Prize bestowed by the Winnipeg Medical Society.

the earlier symptoms (*vide* report of case No. 3486).

Anorexia was complained of in thirty-two cases and was the first symptom to appear in fifteen. When poor appetite was spoken of, it was frequently found that the appetite was good but satiety was produced by the first few ingesta, or in severe cases by even the sight or odour of food. A common complaint was "I feel hungry but as soon as I begin to eat my appetite disappears." This phenomenon was associated with abdominal discomfort in 68.7% and with nausea in 40.6%.

Discomfort was complained of in thirty-three cases (73.3%) and was the first local symptom to appear in seven cases. As already mentioned it was commonly associated with distaste for food or nausea. It appeared at various times after meals and was described as a vague sense of discomfort, or weight, or fulness about or below the umbilicus.

Definite *pain* was the most frequent symptom. It was present in forty-two of the forty-five cases, but was the first symptom complained of in only five. In advanced disease pain was rarely absent. It often followed discomfort, was usually crampy in nature, confined to the lower two-thirds of the abdomen, and was frequently attributed by the patient to gas. It occurred at irregular periods after meals and was usually worse in the later part of the day. These pains were in some cases very mild and transient, but persisted from day to day, were frequently present yet not troublesome enough to cause any complaint from the patient and were admitted only after close questioning (report on case No. 3472). Archibald states that "the chief early symptom which should arouse our suspicion is pain."

Flatulence was present in twenty-six cases. It was not an early symptom but was observed usually after two or three other symptoms became noticeable. Moreover it was not present as often as complained of. A feeling of fulness in the abdomen after meals was frequently ascribed by the patient to gas, sometimes rightly, as was shown by relief after passing of flatus, but sometimes probably due to the increased sensibility of the diseased bowel.

Nausea was reported by nineteen of the patients. In each instance it was associated

with a sense of satiety and discomfort experienced after meals.

Vomiting occurred in ten cases, following discomfort and nausea.

Constipation was complained of by nineteen patients and was the first symptom to occur in thirteen of this series. This symptom, however, is so common in those following the sedentary routine of the sanatorium, that its significance in any given case is difficult to estimate. If, however, it is persistent and obstinate it should be viewed with suspicion. Archibald found constipation peculiar to ulceration of the small bowel, and diarrhoea to involvement of the large bowel. In case No. 3207, however, in which constipation was a marked early symptom followed by diarrhoea, at operation ulceration was observed only in the large bowel.

Diarrhoea, next to pain, was the most frequent symptom, occurring in forty of the forty-five cases. It occurred in some cases in repeated rather severe attacks, but usually the onset was insidious. The previous constipation might give way to one, two or more mushy stools a day with which the patient might even be pleased, looking upon this as an improvement, whereas it marked, rather, a later stage in the disease. It might be transient and alternate with constipation. It was, of course, always a marked symptom of the advanced stage. In all but two cases the diarrhoea was associated with abdominal pain.

Abdominal Examination.

Physical signs in the abdomen were comparatively slight. In only one case was there even slight rigidity, and in only two cases were masses palpable. One of these at operation was found due to the hypertrophic type of intestinal tuberculosis. Tenderness was noted in twenty-two cases, most frequently in the right iliac fossa, but found also in other parts of the abdomen.

X-Ray Findings.

Barium meals were given to forty-four of the series of forty-five, one having been passed over on account of advanced general disease and poor condition. In forty-three definite filling defects were found, while one was doubtful. Hypermotility was demonstrated in twenty-eight cases. In five the barium was segmented

in the small bowel. In twenty-three the defective filling of the bowel was verified by barium enemata.

Examination of Stomach Contents.

Stomach contents of fifteen out of forty-five were examined by the fractional method. Acidity was found within normal limits in twelve, low in one, and in two there was absence of free hydrochloric acid and a low total acidity. Anacidity as a possible cause of diarrhoea was kept in mind.

Faeces.

Stools were examined in forty-two cases after a meat-free diet for three days. *Tubercle bacilli* were found in twenty. Of these only two had sputum free from tubercle bacilli. It is stated that the bacilli can be found, if diligently sought for, in the stools of over 90% of those who have positive sputum. The two cases in which bacilli were found in the faeces and not in the sputum had definite signs of both intestinal and pulmonary tuberculosis.

Occult blood was found in thirty out of the forty-two specimens of faeces examined. Actual haemorrhage has been noted but is not common. Osler and others report fatal haemorrhage from tuberculous ulceration of the intestines. Pus was noted in thirty-two examinations but never in large amounts. *Soluble albumin* according to Coope indicates ulceration. It was found in thirty-two cases of this series. In none was the reaction marked. It was absent in some of the more severe cases and present in others outside of this series in whom ulceration was not even suspected.

Case Reports

Case No. 3222. Female, age 25. Onset of pulmonary symptoms 1918. Haemorrhage in 1919, 1920. Admitted to the Manitoba Sanatorium Aug. 21, 1920, with far advanced pulmonary disease left side, slight on right. Just previous to admission had cramps in lower abdomen, nausea and vomiting. Constipation since onset of illness in 1918. Oct., 1920, had an attack of diarrhoea with pain in abdomen. Following this bowels were irregular. Pneumothorax commenced Nov., 1920. Did not improve and ran considerable temperature. In Jan., 1921, had another attack of diarrhoea and pain with elevation of temperature. Barium meal Feb. 17, 1921. (Fig. 1) shows defective filling of caecum, ascending colon and first part of transverse colon. At operation by Dr. Neil J. Maclean in March, 1921, the terminal part of the ileum, caecum, ascending colon and first part of transverse colon were found diseased. A unilateral exclusion was done. On return to the sanatorium was put on Alpine Lamp treatment and has improved very favourably. Dec., 1922: Temperature normal; no cough; no expectoration; weight up to normal; two or

three soft stools a day; occasional discomfort; feels very well and appearance is very favourable.

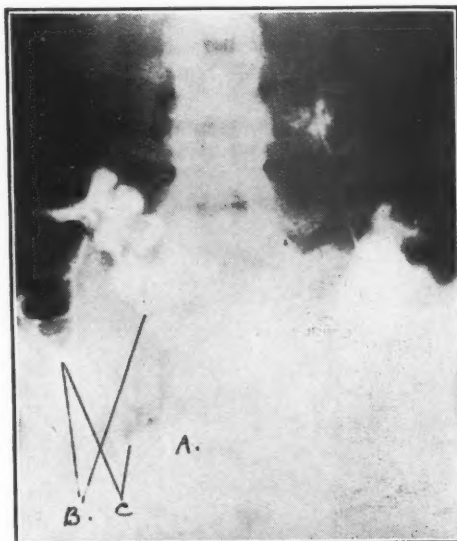


FIG. 1. Case No. 3222. Barium meal 7 hours. Feb 17, 1921.

A. Ileum. B. C. Defective filling of terminal ileum, caecum, ascending colon and first half of transverse colon.

Case No. 3486. Male, age 25. Onset of pulmonary symptoms 1919. Admitted to Manitoba Sanatorium May 6, 1921, with pulmonary symptoms marked, thirty-

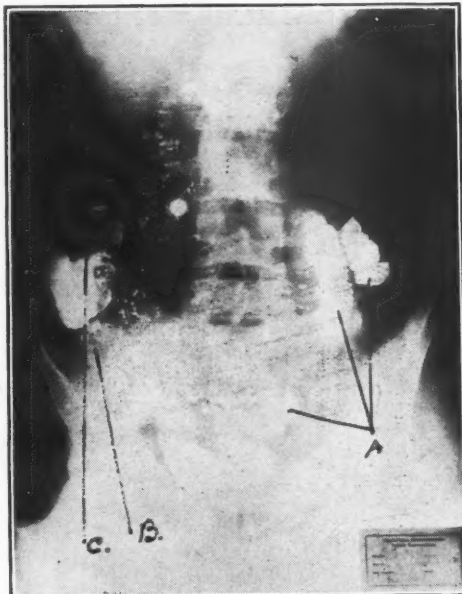


FIG. 2. Case No. 3486. Barium meal 8 hours. March 21, 1922. A. segmentation in small bowel. B. defective filling of caecum. C. Defective filling of ascending colon.

two pounds under weight and with far advanced disease in both lungs. Responded well to treatment and by Oct., 1921, all symptoms were slight, temperature normal, and he had gained twenty-five pounds. At this time he had an abnormally large appetite. In middle of November, 1921, he suddenly became unaccountably nervous and irritable and did not sleep well and began to lose weight. Dec. 15, stools became mushy, more frequent and offensive and he lost strength. Jan. 30th temperature rose to 99 degrees and soon reached 101 degrees. Appetite was impaired and symptoms increased. On Feb. 5th, severe diarrhoea set in and temperature rose to 103

moth-eaten appearance of the caecum and caeco-colon and irregularities of bowel wall at hepatic flexure. On routine sanatorium treatment he made no improvement so was submitted for operation to Dr. John Gunn, Oct., 1920. The caecum and appendix were badly involved, and the rest of the colon and ileum as far as examined was also diseased. The extent of the disease prohibited any radical operation. The appendix was, however, removed, and this gave marked relief from pain. He

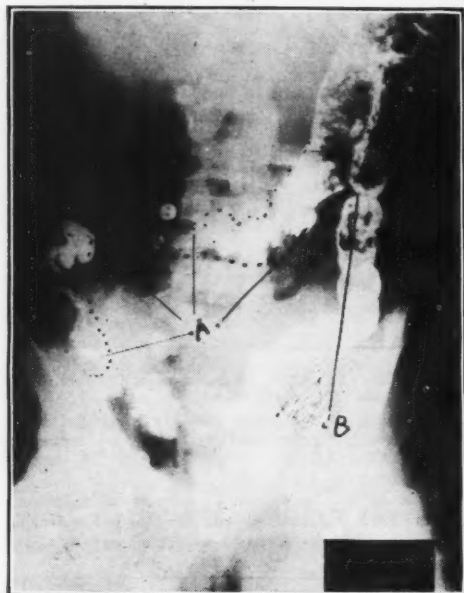


FIG. 3. Barium meal 12 hours. A. Widespread defective filling of caecum, ascending colon and transverse colon. B. Defects in descending colon—contraction and irregularities in intestinal outline.

degrees. Flatulence and nausea became troublesome and there was tenderness in both sides of abdomen. Barium meal (Figs. 2 and 3) show segmentation in small bowel and wide-spread defective filling of colon. He failed to improve so was submitted for operation to Dr. John Gunn, April 17, 1922. Small and large bowel were found too extensively involved to permit of radical operation. He was returned to the sanatorium, went rapidly down hill and died July 29, 1922.

Case No. 3309. Male, age 36. At sixteen had some catarrhal condition of respiratory tract. Good health until 1918 when nervousness, palpitation and vertigo on exertion was complained of. Discharged from army Jan. 1918, on pension for D. A. H. Had slight cough, palpitation and dyspnoea but was able to carry on at his business. Dec., 1918, stools became mushy. One year later he had an exacerbation of diarrhoea accompanied by slight crampy pains below umbilicus. He complained of soreness and a sense of weight in abdomen at all times, aggravated by taking food. Admitted to the Manitoba Sanatorium July, 1920, with a diagnosis of pulmonary tuberculosis. The upper halves of both lungs were involved but pulmonary symptoms were negligible. Temperature reached 99.5 degrees in evenings; he was pale; weight 130 lbs., and intestinal symptoms troublesome. Barium meal Oct., 1920 (Fig. 4) showed defective filling of colon. Barium enema (Fig. 5) shows



FIG. 4. Case No. 3309. Barium meal 6 hours. Oct., 1920—Hypermotility head of meal at splenic flexure. A. Caecum is not visualized. B. C. D. Irregularities in bowel wall.



FIG. 5. Barium enema Oct., 1920. A. Shows moth-eaten appearance of caecum and caeco-colon. B. Irregularities in bowel wall.

was returned to the sanatorium, put on quartz lamp and general treatment immediately and has improved steadily. Barium meal Oct. 3, 1921 (Fig. 6) shows hyper-

motility still present, but the caecum, which in Oct., 1920, was not visualized, retains barium, indicating lessened irritability. Dec., 1922. General condition is good; appearance favourable; he has gained nineteen pounds; cough and expectoration slight; intestinal symptoms slight; belches a little gas and has occasional slight pain and loose stools. Is on ambulant routine. April 24, 1923, discharged symptom free, general condition very good.

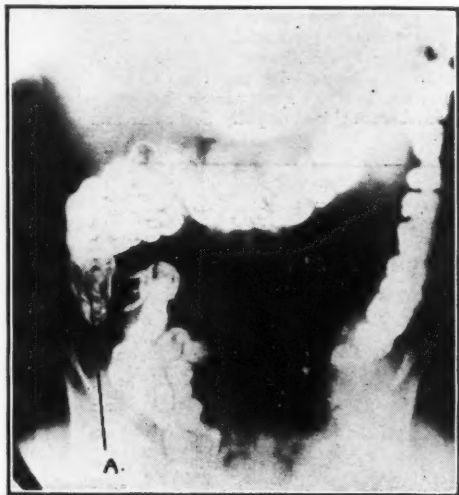


FIG. 6. Barium meal 6 hours, one year later, in Oct., 1921. Hypermotility still present but caecum retains barium, showing improvement.

Case No. 3806. Male, age 23. Pulmonary symptoms date back to 1918. Discharged from army on full pen-

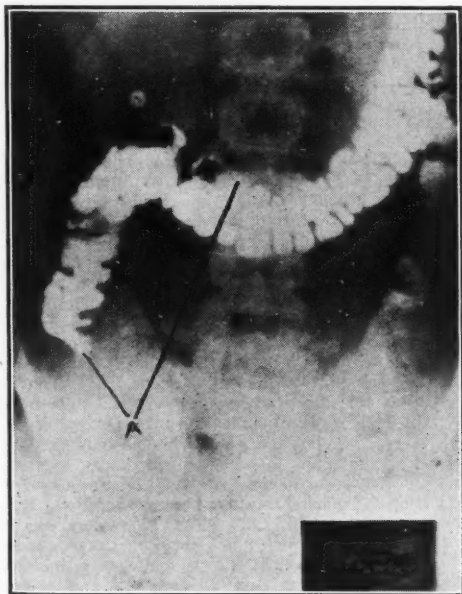


FIG. 7. Case 3806. Meal 8 hours. April 26, 1922. A. Filling defect from caecum to first part of transverse colon.

sion May, 1919. Carried on fairly well until Jan., 1922, when he noticed vertigo and a distaste for food, most marked when the stomach was empty. In Feb., 1922, bowels became irregular; diarrhoea for two or three days followed by constipation. About the same time he began to have discomfort and crampy pains after meals, at first in the epigastrium, and later passing to the hypogastrium, worse after the evening meal. Appetite became impaired; he lost weight and strength. Admitted to the Manitoba Sanatorium April 15, 1922, with far advanced quiescent lung lesion. Temperature normal; slight cough; no expectoration; fifteen pounds below usual weight. Intestinal symptoms as above. No sputum. Examination of the faeces showed as follows: tubercle bacilli G. 2; blood and pus present; soluble albumin, a trace. Barium meal 8 hours. April 26, 1922 (Fig. 7) shows irregular filling of the bowel from caecum to half way across transverse colon. Barium



FIG. 8. Barium enema. July 12, 1922. Note absence of barium in caecum, ascending colon and hepatic flexure.

enema July 12, 1922, (Fig. 8) shows defective filling of bowel between points A and B; caecum and ascending colon are not visualized.

He was put on quartz lamp and general treatment immediately and has improved markedly. In Dec., 1922, there was practically no cough, appetite was good; weight up to normal; strength good. He still had an occasional mild transient diarrhoea but no discomfort nor gas. He has continued to improve.

Case No. 3863. Male, age 39. Onset of pulmonary symptoms Jan., 1922. Admitted to Manitoba Sanatorium June 13, 1922, with far advanced active disease in lungs. Jan., 1922, began to have pain in abdomen after food. This usually lasted for about one hour leaving a heavy sensation. Appetite good; bowels regular until a few days before death when he became slightly constipated. Died Aug. 10, 1922. Post-mortem examination revealed two small ulcers, one about $\frac{3}{4}$ inch and the other $\frac{1}{2}$ inch in diameter in the ileum three feet from the ileo-caecal valve.

Case No. 3207. Male, aged 39. In 1911 was treated at the Manitoba Sanatorium for four months for pulmonary tuberculosis. Made a good recovery and carried

on well until 1918, when he had a severe attack of influenza following which general health was impaired. Dec., 1919, constipation became very obstinate; strength failed; flatulence became noticeable; and stools very foul. In March, 1920, he took a heroic dose of salts following which diarrhoea and pains in abdomen became troublesome and all his symptoms worse. Readmitted June, 1920. Abdominal examination showed recti spastic, tenderness at McBurney's point and marked tenderness in left iliac fossa. Barium meal (Fig. 9) shows hypermotility and marked filling defects throughout the large bowel. Submitted for operation to Dr. Neil J. Maclean, Oct. 14, 1920. The large bowel from caecum to pelvic colon was found diseased. A unilateral exclusion was done. He was returned to the sanatorium Nov. 24, 1920, and put on quartz lamp and general treatment immediately. His improvement has been very gratifying. In December, 1922, appearance very good; cough and expectoration slight; appetite good; no pain or discomfort in abdomen; has three or four loose stools a day. His weight has reached his maximum 167½ lbs. and he is able to work five or six hours a day.



FIG. 9. Case No. 3207. Barium meal at 9 hours. June 18, 1920. A. Widespread defective filling of the colon and hypermotility.

Operative findings were, widespread disease in colon, none in small bowel.

Case No. 3472. Male, age 36. Onset of pulmonary symptoms March, 1918—cough, expectoration, slight loss of weight and strength; in April, 1919, an attack of diarrhoea and crampy pain in lower abdomen which cleared up in one week. In July, 1919, another attack of diarrhoea and pains lasting two weeks; following this had discomfort and gas and slight pains in lower abdomen occurring at variable times after meals and accompanied by mushy stools. Jan., 1921, began to lose weight and strength and all symptoms were aggravated. Haemoptysis Feb. and March, 1921. Admitted to the Manitoba Sanatorium April 25, 1921, with marked pulmonary

symptoms. Under treatment these improved and he gained twenty pounds in four months, but temperature of 99.5 degrees persisted. He did not complain of intestinal symptoms although they were definitely present. Aug., 1921, temperature began to rise; Oct., 1921, weight began to fail and temperature rose still more. Dec., 1921 he had two severe attacks of diarrhoea, pain and flatulence. No abdominal tenderness could be elicited. Barium meal (Fig. 10) shows segmentation in small bowel and defective filling of caecum, ascending colon and transverse colon.

A laparotomy by Dr. John Gunn, March 3, 1922, revealed widespread disease in ileum and colon. It was considered that nothing could be done. Returned to sanatorium and had quartz lamp and general treatment without benefit; went rapidly down hill and died.

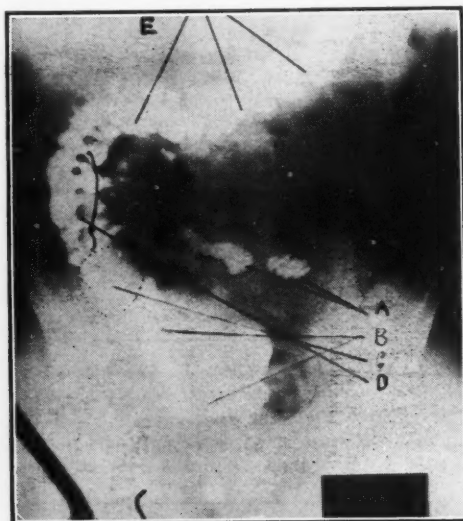


FIG. 10. Case No. 3472. Barium meal. Dec. 29, 1921. A. Segmentation in small bowel. B. Barium in ileum. C. Caecum scarcely visualized. D. and E. Irregular filling of ascending and transverse colon.

Case No. 3189. Onset of pulmonary symptoms with haemorrhage July, 1920. Admitted to Manitoba Sanatorium July 27, 1920, with far advanced disease in both lungs, miliary in appearance. Temperature 100 degrees; cough troublesome; expectoration one ounce; seventeen pounds below usual weight; no abdominal symptoms. Aug. 1920, appetite became impaired and he felt a sense of weight in the epigastrium after meals; belched gas about one hour after food. Shortly after this date he began to have crampy pains, and his stools became mushy and frequent, five or six a day. Later, diarrhoea and constipation alternated. Nov. 6, 1920, had an exacerbation of intestinal symptoms and temperature rose to 101 degrees. Barium meal Nov. 24, 1920 (Fig. 11) revealed hypermotility and caecum and ascending colon were not visualized. There was tenderness over the caecum; otherwise abdominal examination was negative. Quartz lamp and general treatment commenced Nov., 1920. Barium meal April 26, 1922 (Fig. 12) shows caecum and ascending colon well filled, denoting improvement. Discharged in Aug., 1922, with no pulmonary or intestinal symptoms and a gain of fourteen and a half pounds. Has worked steadily since discharge and gained weight.



FIG. 11. Case No. 3189. Barium meal 7 hours Nov. 24, 1920. A. Barium in ileum B. Caecum and ascending colon not visualized. C. Head of meal well down descending colon denoting hypermotility.



FIG. 12. Barium meal at 11 hours. April 26, 1922. Caecum and ascending colon are well filled. Head of meal half way across transverse colon. Note improvement shown by no hypermotility and the previously irritable caecum and ascending colon now retaining barium.

Case No. 3995. Male, age 37. Onset Dec., 1921, cough; expectoration and loss of weight steadily in-

creasing. July, 1922, began to have slight crampy pains in lower half of abdomen just before going to stool, with occasional mild attacks of diarrhoea; two or three mushy stools for two or three days at a time. Sept., 1922, had a severe attack of diarrhoea lasting ten days and lost much weight and strength. Constipation followed this attack. Admitted to the Manitoba Sanatorium Oct. 30, 1922, with far-advanced pulmonary lesion; cough and expectoration marked; general condition poor; temperature high; constipated; appetite, he said, was good, but eating gave him cramps in abdomen. Shortly after admission had another attack of severe diarrhoea. Barium meal (Fig. 13) shows segmentation in small bowel and gross wide-spread filling defects of colon. Condition became progressively worse and the man died on Jan. 11th, 1923. Carrying about gross pulmonary disease he had still kept at work and sought relief first on account of diarrhoea.

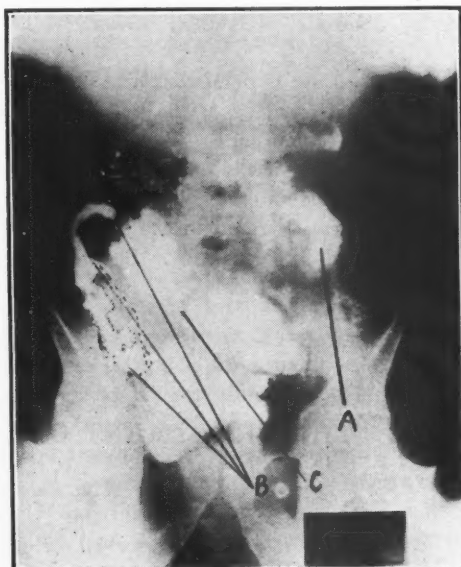


FIG. 13. Case No. 3995. Barium meal 6 hours. A. Segmentation in the small bowel. B. Marked defective filling of the caecum, ascending colon and hepatic flexure. C. Defect in transverse colon.

Conclusions

1.—The frequent association of intestinal and pulmonary tuberculosis should always be kept in mind. If a patient with pulmonary tuberculosis fails to improve on treatment, or a retrogression in general condition is noticed, it must be looked upon as possibly due to a commencing focus elsewhere. The intestine being the organ next to the lungs most frequently involved, should be the first suspected. Especially is this the case if the lung condition cannot be shown to be responsible for the increase of symptoms.

2.—Any disturbance of gastro-intestinal function, however slight, in one suffering from pul-

monary tuberculosis, should immediately arouse suspicion of intestinal ulceration.

3.—Intestinal tuberculosis may be present without producing any evident symptoms. On the other hand, one or two small ulcers may give rise to definite symptoms.

4.—General symptoms usually appear before local symptoms.

5.—A frequent early symptom complex is satiation with abdominal discomfort and nausea after meals.

6.—The symptoms most constantly found are pain and diarrhoea; these being usually preceded by anorexia, abdominal discomfort and nausea.

7.—Constipation, if persistent and obstinate, especially if alternating with diarrhoea, is a very significant symptom.

8.—By means of a radiograph of a barium meal and of a barium enema tuberculous ulceration can be demonstrated in the colon by filling defects and hypermotility. Segmentation

of the barium in the small bowel may indicate ulceration. Every suspected case should be investigated by barium meal.

9.—Tubercle bacilli in the stools are of no diagnostic significance unless the sputum is negative or absent.

10.—Pus and blood in the stools indicate ulceration but both may be absent though definite ulceration be present. Free haemorrhage is uncommon.

11.—The test for soluble albumin we have found of little help in the diagnosis of ulcerative intestinal tuberculosis.

12.—Abdominal signs are comparatively slight, except when the condition is advanced. Rigidity and palpable masses are not common. Slight tenderness found more often over the caecum than elsewhere is frequently present.

13.—Definite, especially active, pulmonary tuberculosis adds immense weight to every definite symptom and sign of intestinal tuberculosis.

THE TREATMENT OF INTESTINAL OBSTRUCTION

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IT is a curious fact with which one cannot fail to be impressed that, in all chronic abdominal conditions necessitating surgical intervention, the operative mortality has been reduced almost to vanishing point, and the mortality attending operations for acute conditions has fallen considerably in all cases save those of intestinal obstruction.

It is well recognized by general practitioners and surgeons alike that the earlier operations are performed for such conditions as acute appendicitis, perforations of the stomach, duodenum or gall bladder, and ruptured tubal pregnancy, the less the risk; yet, it is beyond comprehension why surgeons should be confronted with patients suffering from acute intestinal obstruction when they are almost moribund. When speaking of this subject my remarks must be taken as referring to intra-

abdominal conditions alone. Strangulated hernias are not now referred to.

I am sure I but echo the experiences of every surgeon when I say we seldom cease to regret being compelled to operate for intestinal obstruction when simple alleviation can alone result, or worse still, when death must almost inevitably follow where cure might have been effected or life prolonged by earlier intervention.

I do not wish to be considered presumptuous when I state that I hope the remarks I make may lead to a better appreciation amongst general practitioners to whose lot it generally falls to come into contact with these cases in their initial stages, of the utter futility, nay, positive danger, of resorting to medicinal measures and enemata for their treatment.

The administration of an enema cannot in

itself do any harm and may help the practitioner to arrive at a diagnosis, but purgatives should be avoided. For such cases it would be well for him to always keep in mind the old Roman saying *Fuge purgantia tanquam pestem*.

There is but one method, and one only, of treating acute intestinal obstruction and that is by early operation, no matter what its cause.

The present mortality is not a bit better today than it was 25 years ago, viz. 50%; probably 60% would be more accurate.

Acute intussusception, in my experience, is the commonest form of intra-abdominal acute intestinal obstruction to meet with. There is no acute abdominal condition more easy to diagnose, and that, too, although we meet with the vast proportion of such cases in young infants who are unable to speak or tell one their symptoms.

There cannot be any excuse for failure to recognize this condition within, say, twelve hours after its onset. The sudden onset of severe abdominal pain, in an infant between the ages of 2½ and 9, 10 or 12 months, which comes in paroxysms associated with vomiting, and which is followed by a bowel evacuation within a few minutes after the first or second paroxysm; the pale face of the infant covered with profuse cold perspiration and all this followed by a stage of exhaustion to be repeated very soon afterwards, should excite the suspicion of acute intussusception. In a few hours after two or more bowel evacuations the passage of blood and mucus takes place. Palpation of the abdomen within a short time should lead to the detection of the so-called sausage-shaped tumour. The administration of an anaesthetic will help to clear up any doubt that might possibly exist. Then with one finger in the rectum and the other hand on the abdominal wall the entire abdomen can be palpated so that it is impossible to fail to detect an intussusception.

As regards the variety of intussusception met with, my experience has been that in the majority of cases the intussusception starts about 1½ to 2 inches above the ileo-caecal valve. In other words, the intussusception starts as an enteric form and subsequently becomes the compound or double type, viz. enteric-ileo-caecal. I believe, too, that the symptoms are more severe in this type from

the start (the condition of the infant is worse at an early stage) than they are in the typical ileo-caecal or in the purely chronic form. The diagnosis of such a condition once made, there is no method of treatment to be thought of but immediate operation.

In a recent paper published upon this subject in the *British Journal of Surgery* the mortality is generally stated to be about 35%. Individual operators have had a mortality as low as 14.2%. The chief factor determining this high death rate is the length of time that has elapsed from the onset of the condition until operation has been performed. The age of the patient has practically no influence upon it. In my own series of cases (79 or 80) the ages of the patients varied from 2½ months to 73 years—both of these cases recovered. As regards the mortality in my cases the deaths have been three, a young man of 22 years within an hour after operation (in this case the intussusception was gangrenous and had existed for 3½ days), a young child of eight months, who had been ill for nine days and in whose case resection was necessary, and the third, an infant of 8½ months who died of convulsions on the ninth day after reduction, when its wound had been soundly healed and when I was about to send the child home.

This low mortality in such a series of cases as I have had exemplifies the luck which attends some surgeons in certain lines of work. The two essentials for success in such cases are early diagnosis and early operation.

I might, however, state that I believe acute intussusception in young infants is an abdominal condition which requires rapidity of operation if success is to be attained. In the vast majority of cases the operation should be completed in from 8 to 10 or 12 minutes.

As regards subsequent treatment I am now in the habit of sending the infant home a few hours after recovering from the anaesthetic. Very rarely is a case retained longer than 6 or 8 hours.

Apart from intussusception, I have been accustomed for many years to describe the treatment of acute obstruction other than that due to ordinary cases of strangulated hernia as differing according to the stage of the disease into which the case has passed, and I am accustomed to describe three stages.

The first stage is that in which the patient is seen early, his general condition is good and there is but little general intestinal distension.

The second stage is that in which the patient is not seen until later; the general condition, is, however, good, but the abdomen is considerably distended.

The third stage is that in which the general condition is bad, the pulse is feeble and perhaps intermittent, the abdomen is enormously distended and the patient is profoundly poisoned by absorption of toxins, whether products of bacterial activity, or a proteose intoxication, or a combination of both conditions.

The treatment of the first stage consists in washing out the stomach with bicarbonate of sodium solution, after which a general anaesthetic is administered and the abdomen opened freely. The cause of obstruction is searched for and removed after which the abdomen is closed. The stomach is again washed out and the patient returned to bed. I consider lavage of the stomach after operation as more important, in many cases, than before operation.

In the second stage a similar procedure is followed until the obstruction is discovered and removed. A separate incision is then made through the left rectus muscle above the umbilicus, and a loop of the jejunum as close to its origin as possible is brought out through the wound. Into it is fastened a tube of 7 or 8 mm. diameter after the method of Senn's gastrostomy except that only one or two purse string sutures are used so that too much subsequent narrowing of the intestinal lumen may be avoided. The intestine is then returned within the abdomen and fixed with two catgut sutures, one on each side of the tube, to the parietal peritoneum and posterior sheath of the rectus. A lunated piece is cut out of each side of the end of the tube introduced into the intestinal opening so that if it accidentally impinged upon the opposite wall of the bowel the intestinal contents could still escape freely.

By this procedure the distended intestines will be allowed to empty themselves of their poisonous contents. The central wound is then closed. The stomach is thoroughly irrigated and emptied of its poisonous contents, as before, and the patient put back into bed. An experienced nurse or a senior student is directed to continue emptying the intestines

through the tube by siphonage with bicarbonate of sodium solution. In this way, without taxing the patient's strength and without any shock, the intestines are assisted to empty themselves of their poisonous contents.

This process can be continued for several hours. At the end of this time the entire intestinal area between the stoma into which the tube has been introduced and the point at which the obstruction existed will have been emptied of its contents and these contents replaced in large measure by a fluid containing sodium bicarbonate and glucose, the absorption of which will counteract the tendency to acidosis and help to build up the reserve carbohydrate as well as replace the fluids of which the tissues have been deprived.

Impressed as I have been with the soundness and importance of the views enunciated by Mr. Victor Bonney, of the Middlesex Hospital, London, in the April 22nd, 1916 number of the *British Medical Journal*, I have discarded all methods of emptying the distended intestines such as multiple punctures; Moynihan's method of threading the distended loops on a glass rod through which they were emptied; as well as my own method of irrigating the intestines through an opening made into the jejunum high up, thus forcing the contents to escape through an opening made into the loop just above where the obstruction existed.

The tube can be removed in 24 or 48 hours under gas or local anaesthesia, and the opening into the intestine closed by a single mattress suture. Dr. C. H. Mayo's suggestion of bringing the loop of intestine out through a hole in the great omentum may obviate the necessity of a suture for closure of the intestine after removal of the tube.

In the third stage the patient cannot stand the administration of any general anaesthetic, and he is not even removed from the bed in which he lies.

The stomach is washed out as before and a 1/2% solution of novocain is used to infiltrate the tissues in the middle line above the umbilicus through which an incision is made into the abdomen sufficiently large to introduce the finger and withdraw a loop of the jejunum as near to its origin as possible.

A tube is then introduced into the fluid containing segment of gut and siphonage contin-

ued as before described. Should the patient survive, it may be possible to open the abdomen, seek out the cause of obstruction and relieve it at the end of a week. Nourishment may be given through the tube from the moment the poisonous intestinal contents have been evacuated, or by mouth, and the tube need not be removed until the patient has recovered from the effects of the second operation.

I am satisfied that in all cases of intestinal obstruction associated with stercoraceous vomiting drainage of the jejunum as near to its origin as possible should be instituted. This drainage should be assisted by repeatedly filling with bicarbonate of soda solution and syphoning off the intestinal loops after the patient has been returned to bed.

The upper part of the intestinal tract, and in some cases the stomach also, is nothing but a toxic cesspool which ought to be emptied, as quickly as possible, of its poisonous contents, washed out as thoroughly as possible and then refilled to some extent with a sodium bicarbonate and glucose solution. As has been pointed out by Dr. J. E. Summers of Omaha, Nebraska, Bonney's method of performing a jejunostomy is the one flaw in his otherwise thoroughly sound paper.

The treatment of acute obstruction engrafted upon chronic is a different proposition. The site of the chronic obstruction is almost invariably in the large intestine and in all such cases the bowel above the obstruction should be drained at once.

A caecostomy—this drains the fluid containing segment of Bonney—after the method of Sir Harold Styles, gives the best results in the way of tiding the patient over his immediate dangers.

The mortality of intestinal obstruction with acute symptoms is generally stated to be about 40%. My opinion is that the mortality all round is nearer to 60%, and yet this disgraceful state of things must in truth be largely attributed to the pernicious habit of meddling medication and delay. It should be remembered that just as there is a tide in the affairs of men, which, taken at the flood, leads on to fortune, so there is a time in the course of these cases within which operative interference will be attended by the most brilliant results; omit the opportunity this period offers, surgery cannot expect any triumphs while the unfortunate sufferer can only hope that death will come quickly and release him from his misery.

Fusion in Scoliosis.—Henry Bascom Thomas, Chicago, performs the Hibb's operation in these cases; but in order to increase the ankylosis he uses an osteoperiosteal graft for additional support. The osteoperiosteal graft is a graft of periosteum with a thin layer of underlying bone which is easily moulded to the parts requiring support. Its use for reinforcement in cases of scoliosis has produced especially gratifying results when additional bone is required in a given case, and when it is desired to reinforce the foundation made with the neighboring bone. Often the spinous processes are small, and therefore do not yield sufficient bone. In other cases, the patient may not be suited physically for the more severe transplantation method in which large pieces of bone, including the cortex, are removed from the tibia. Under such circumstances, the use of the osteoperiosteal graft is particularly in-

dicated. Small grafts of periosteal compacted material, one for the interval between each spinous process base, are placed so that wafer graft covers the entire posterior disk space and overlaps the neighbouring bone. The result is a more even and symmetrically stronger support than the fusion alone, which is often too strong in one area and too weak or insufficient in another. The postmortem examination of one case in which this type of graft was used showed a remarkably uniform distribution of bone, with surprising strength. The outcome in these cases Thomas says seems only fairly encouraging. Less so in a corrective effect on the rotation deformity than on the curves. He is less optimistic than the reports on prognosis made by Hibbs, Kleinberg, Whitman, Forbes or MacLennan would indicate.—*Jour. Am. Med. Ass.*, Nov. 10, 1923.

SYMPOSIUM ON DIFFERENTIAL DIAGNOSIS OF
ABDOMINAL LESIONS*

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MY part in the symposium consists in the discussion of diseases of the jejunum, ileum and colon. The field is a very large one, and I shall have to confine myself to a brief consideration of some of the essential points in diagnosis.

The jejunum and ileum properly go together. Let us take first the actual lesions. They are chiefly obstruction, and perforation, from disease or injury. I exclude ordinary external hernia.

And first, obstruction. The ordinary causes are internal hernia, adhesion bands, and superior mesenteric ileus. I would say that, granted the initial severe colicky pain, the earlier and the more persistent the vomiting, the higher will be the obstruction. In the early stages if the obstruction is high, examination will reveal distension in the upper abdomen, while the lower remains comparatively flat. With high obstruction also, rapid wasting and the bluish lips of toxemia are prominent early signs. Vomiting is biliary and does not become faecal. The pulse goes to pieces early and fever is late and low. In the differential diagnosis one has to consider chiefly perforated gastric ulcer, biliary colic and inflammation, and pancreatitis. My predecessors have already discussed these. But I want to make this point; that the diagnosis depends even more upon exact history than upon exact examination. Sir James Mackenzie has done us a service in insisting upon the great importance of the clinical history. For instance, in acute abdominal lesions I feel that a careful distinction as to the nature of the pain is a very strong point in diagnosis; and that too often the doctor in taking the history does not insist sufficiently upon defining the nature of the pain. A bowel obstruction causes typical colic, while

an inflammatory condition causes a steady, grinding pain, lasting two or three days. It is the distinction between a mechanical upset of rhythmic peristalsis and the tension pain of inflammatory exudate. In bowel obstruction the signs of peritonitis, rigidity and loss of respiratory movements are absent or late. I hardly need to remind you of the rapidly fatal character of high obstruction. It is fairly certain that the cause of death, in this condition, is the absorption of split protein, only half digested, from the duodenum and upper jejunum, just as it is in acute pancreatitis, and in some forms of industrial accidents accompanied by the crushing of muscle, and in burns. Such a toxæmia kills a patient early, —several days earlier, for instance, than does a perforative peritonitis. The usual cause of high obstruction is either a superior mesenteric artery ileus or band adhesions. If the circulation is blocked in the intestinal loop and gangrene ensues, death is all the more rapid. Early operation, which must often be exploratory, and quick drainage of a high distended loop, is the proper procedure.

With regard to tumours, the small bowel is curiously immune. In the Royal Victoria Hospital we have had only two or three cases of sarcoma of the small bowel, and one of carcinoma. In ordinary diagnosis one may leave tumours out of consideration. Of circulatory disturbances a not infrequent condition is embolism of the superior mesenteric artery, and occasionally thrombosis of the corresponding vein. Embolism is characterized by symptoms of an acute abdominal lesion, to which is soon added, usually within twelve hours, bloody stools. The diagnosis from intussusception is usually made by the age of the patient and by the presence of a palpable mass in the latter.

Of the injuries of the small bowel we have

*Read before the Ontario Medical Association meeting, Windsor, Ontario, May 31, 1923.

to consider chiefly rupture of the distended bowel by the application of blunt violence, which is almost certainly a bursting effect; and secondly gunshot injury. Of the latter we saw a great many examples during the war, and in the present state of society we are seeing more and more of them in civil life. The most useful point in diagnosis is, in a way, a negative one, and it is this; that frequently the signs of peritonitis from a gunshot wound are remarkably late in appearing, and one must be careful not to conclude from their absence that the bowel has not been injured. Where there is the least suspicion of a bullet having passed into the abdomen, an exploratory operation is immediately indicated, even though the patient appears to be in thoroughly good condition. The reason for this, as I concluded from war experience, is that the shock of the traumatism to the mesentery paralyzes for a number of hours, from eight up to twenty-four, peristaltic movements of the bowel, so that bowel contents are not projected into the peritoneal cavity. Often have I seen 8 to 12 hours after the injury, in wounded soldiers, even large tears in the small bowel lying right open, but inert, and the peritoneum quite clean. Such, unfortunately, is not the case with the ruptures of the bowel in civil life. Here, usually, the intestine is distended with gas and fluid, and these escape freely and set up an early peritonitis. With the history of an injury, the onset of pain and of muscular resistance make the diagnosis practically certain, and a laparotomy is urgently indicated. It is true that in some cases a solid viscus, like the liver or spleen, is ruptured and not the bowel, and a large effusion of blood into the peritoneal cavity may simulate the signs of peritonitis. On close examination, however, it will usually be found that the peritoneal signs are not pronounced, muscular resistance is slight, respiratory movements are largely retained, and fever is low, while examination reveals the movable dullness of the fluid and the pallor of haemorrhage.

Of the chronic diseases of the small bowel, tuberculosis is by far the most frequent, and I feel sure that many cases go unrecognized until very late in the disease. I shall defer, however, consideration of this aspect and include it under the colon.

Coming now to the colon, and considering first the acute and subacute lesions, we begin with the appendix and caecum. I shall not discuss typical appendicitis in itself at any length, but I would say that in the right lower quadrant attacks of pain are too often and too lightly set down to acute appendicitis. The number of recurrences of pain in this region after the appendix has been removed is larger than most men realize or are inclined to admit. I know it is often difficult to make a definite diagnosis that appendicitis is not present, and one's inclination, for safety's sake, is to operate when in doubt. Nevertheless, there are not a few occasions when a close, accurate history and careful examination will save one from the chagrin of the *contretemps* indicated above. It is all very well to talk about adhesions and their inevitability, and try thereby to console the patient. Such reflections usually fail to console. Nor do they console the surgeon, when he sees his patient go past him next time to some other doctor with a reputation for caution and care rather than for cutting. In surgery the three C's are as necessary as the three R's. We must realize that there are not a few causes of attacks of pain in the right lower quadrant, acute and subacute, other than appendicitis. We have all made our mistakes. Mine have led me to be suspicious that under the following circumstances a given case is not one of appendicitis:

- 1.—If fever, vomiting, or the constitutional signs of malaise, lassitude, headache, etc., antedate the onset of pain, even by a few hours, appendicitis is unlikely. Look for typhoid, grippe, an infectious fever of any sort; and wait.

- 2.—If fever, during the first day or two, is 103 or over, appendicitis is unlikely, for appendicitis rarely creates a high fever. Think rather of a pneumonia; or a transitory toxic absorption from the bowel in cases of intestinal infection.

- 3.—If rigor occurs early, appendicitis is unlikely. In a review of a series of eighty-five cases of appendicitis I found chill recorded only three times; and in each instance it was due to empyema of the appendix,—retained pus—and it came on late. Think rather of pneumonia. Look at the *alae nasi*, and make a leucocyte count. If the leucocytes number over 15,000

in the first twenty-four hours it is not likely to be appendicitis.

4.—If you find on examination tenderness over the transverse and descending colons as well as over the caecum, beware! It may be a mucous colitis. If your patient is a nervous woman; if the pain is colicky and continues so; if there has been marked constipation; if she has had previous similar attacks; if tenderness does not quickly become localized to the caecum and disappear over the rest of the abdomen; and if an enema brings away any reasonable quantity of mucus, it most probably is a mucous colitis and you will not cure it in the majority of cases by an appendectomy.

The typhlitis of our fathers is still to be reckoned with. Of course, the colitis may be due to other better known causes (that of true mucous colitis being unknown) such as tuberculosis, or dysentery of amoebic or of the Shiga or Flexner organisms. Tuberculosis in particular is quite capable of causing an acute colitis. The laboratory has to help us here.

I need hardly do more than make passing reference to such ordinary things as cholecystitis, cholelithiasis, pancreatitis, renal infections, salpingitis and ectopic gestation; nor, beyond what I have already said, to pneumonia and diaphragmatic pleurisy. All these may cause difficulty, but you have them constantly in mind, and you have already heard them discussed in this symposium. The site of tenderness remains after all the most certain differentiating factor; but always controlled by an accurate history of antecedent attacks and of the onset.

But of two rarer things I must remind you; First, an acute tuberculous inflammation of the lower mesenteric glands in the angle between caecum and ileum. In a tuberculous subject, think of that. In fact, think of it anyhow. It is not so rare, especially in children up to 15; and pulmonary lesions are frequently absent.

Secondly, a rupture of a Graafian follicle with bleeding into the peritoneal cavity. Dr. Primrose, of Toronto, drew attention to this possibility some years ago and reported several cases. But the diagnosis is hard to make. At most, you may have grave doubts of the condition being appendicitis. I would add that a high leucocyte count does not differentiate

between inflammation and haemorrhage. De Quervain says that a leucocytosis of 20,000 to 25,000, where the signs of infection are but slight, points much more to haemorrhage than to inflammation.

Turning now to the chronic diseases of the right lower quadrant we immediately get into a difficult subject, and one which is exciting a great deal of interest. Arbuthnot Lane's ileal and caecal stasis, the mobile caecum, Lane's kink, Jackson's membrane, visceroptosis, caecoptosis, coloptosis, faulty rotation of the colon, colitis,—all these of late years, with our advancing knowledge, have come in to cloud the simple old picture of chronic appendicitis, and to worry the incautious surgeon with recurrences of pain. It is a regular maze which only lately we are beginning to thread with some measure of success. To these should be added the functional disturbances of the large intestine, particularly again mucous colitis of chronic type and confined to the ascending colon, which is often of nervous origin, and various ill-defined spasmodic states, especially at the ileocaecal sphincter.

You are all acquainted with the surgical dilemma. The patient has more or less chronic pain in the right lower quadrant, coming on soon or late after meals; he has vague tenderness in that area on palpation; he has never had a frank acute attack of appendicitis with fever and vomiting; he is apt to be constipated, sometimes badly so; he feels generally below par, and lacks energy; the pain may be quite bad for an hour or so, but he never has fever, and very rarely vomiting; his abdomen is never really rigid on examination; he may at times pass some mucus with stools; and he is apt to be nervous. You order a barium meal; and you find the caecum a bit low; the hepatic flexure at the iliac crest; the transverse colon down in the true pelvis, the splenic flexure normally high. Stomach, kidney, and liver are not low. The question is, will he be cured by removal of the appendix or not? You have found the appendix normal on previous occasions, and the patient not really cured by appendectomy, and you hesitate. If he had frank general visceroptosis, you would give him massage, increase his weight, order a regular laxative, alter his diet, give him a belt, and prescribe Dr. Coué's formula; and above all insist

on golf. And you would hold your hand from operating. But if he had had any frank attack of appendicitis previously you *would* operate, and you would order all the other measures for convalescence.

But he is half-way between. Can one be sure that the cause of his slight chronic distress is the appendix alone, or adhesions about the appendix? I don't really know how to be sure. But I have learned to be cautious. My advice is mostly negative. First, mild recurring pain is not enough to justify operation, unless all these other things that rouse your suspicions, ptosis, neurotic habit, severe constipation, etc. are absent. If the patient is otherwise normal and healthy, then operate. It is probably the appendix alone.

Secondly, if the barium meal shows a caecoptosis and a coloptosis, even into the true pelvis, do not conclude that that of itself, with or without appendix adhesions, is causing the pain. You may go on and stitch up the caecum to its normal position, or even do a Waugh operation; and yet find recurrences of the old symptoms. Why? Because mobile caecum, caecoptosis or coloptosis, with or without ptosis of stomach and kidney, may be due to congenital abnormalities, the bowel being laid down originally in too great length. As such it need produce no symptoms. And the vague symptoms often associated with general enteroptosis, crampy pains, a feeling of weight, especially in the right lower quadrant, severe constipation, lassitude, nervousness, hypochondria, need not be due to the displacement of the viscera at all, which is only a coincidence,—though a frequent coincidence. Such symptoms are functional at bottom; they occur often in those neurasthenic patients whom the French call picturesquely, “*déséquilibrés du ventre*,” or freely translated, “belly-cranks,” the balance or equilibrium of whose intestinal tract is upset. Beware of operating on these “belly-cranks”! It would be an error, however, not to realize that such functional and anatomical abnormalities, associated with neurotic symptoms, may become complicated by organic changes such as kinks, bands, muscular atony, changes due to the weight of a full and a loose colon, as well as to true chronic inflammation, and that there may thus develop a vicious cir-

cle which can only be broken by an operation which will relieve the organic disability and may possibly cure the psychic disability.

But the danger is that you remove the appendix alone and, although knowing that the caecum is low and bulky, feel too timid, lacking much experience, or too uncertain of the result, to go on and do a caecopexy or a Waugh operation. Even if you did go on and do that, you may get a poor result.

The conclusion is that in this present confusion between simple chronic appendicitis and the mobile caecum, where one feels uncertain, it is better for the general practitioner or the surgeon lacking wide experience, not to operate, because nobody as yet can give you the differential diagnosis sufficiently clearly to enable you to distinguish which case will be cured by appendectomy and which not. Better use medical means for a good while; and if the patient is unrelieved, shift the responsibility to a large hospital, or to a man with broad shoulders; or if you have to operate, hedge, and hedge boldly.

A few words on chronic constipation. I mention it because, since Lane came over, men are doing serious operations for its relief. We must remember that constipation is “many and various.” Before thinking of operation, we should make a much more exact diagnosis than is currently done. The barium meal is of course essential. Only here also, be cautious! Accept no easy diagnosis of “colonic stasis” on the basis of a 48-hour observation in a patient who is having no exercise. Insist on a 96-hour observation. Insist on knowing whether the stasis is in the caecum, in the colon, or in the rectum. Exclude a neurosis. There is no use in cutting out the right half of the colon when the delay occurs only in the rectum and is spastic. Nor in a patient who is hypochondriacal from youth up.

In conclusion, I turn with relief, to one other disease in which the diagnosis is now clear where it used to be dark. I refer to tuberculosis of the colon. Tuberculosis of the small bowel is still difficult to be sure of except in the late stages. But we have learned in the last ten years that the x-rays can give us a sure, early diagnosis when the colon is affected. I refer here to the ordinary ulcerated form of

the disease; not to the rarer hypertrophic tuberculosis of the small bowel, or the fibrous stricture of the small bowel.

The cases are not rare. Usually the patient has recognized pulmonary tuberculosis. He begins to notice vague abdominal symptoms;—flatulence, rumblings, loss of appetite, slight occasional twinges of pain here and there in the abdomen. Slight fever appears; and he feels vaguely miserable. You suspect an invasion of the bowel from the lungs, but physical examination leaves you very uncertain. Now there are two possibilities, granted that tuberculosis is really present.

(a) The small bowel alone is affected. If so, constipation is the rule; and x-rays cannot help us.

(b) The large bowel is affected. If so, diarrhoea is the rule and the x-ray can give us an early diagnosis.

Briefly, the caecum and ascending colon are the usual sites of disease. Palpation will often reveal slight constant tenderness over the caecum. Order a barium meal. Insist on plates being taken every hour from the 6th to the 12th hours. If there are tuberculous ulcers in the caecum or colon, you will find that the bowel at that spot will not hold the barium; it will hurry it on; it will not fill out normally. Hence we get two x-ray signs,—hypermotility and filling defects. In the presence of suspicious clinical signs, hypermotility alone is sufficient to assure the diagnosis. If by the 8th to 10th hour the barium is in the descending colon and the caecum or ascending colon can not be seen to fill out properly, you may consider the diagnosis of tuberculosis practically certain. Even when clinical signs are absent a finding of this sort may be accepted as almost sure proof of the disease.

RENAL AND SPLENIC LESIONS AS FACTORS IN UPPER ABDOMINAL DISEASE

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IN discussing the rôle played by these two important structures in the production of symptoms referable to the upper abdomen, one must confine discussion to lesions which have a strict surgical bearing. We are further cramped by the lack of exact knowledge of the function of the spleen. In view of this, during the last ten years surgical therapy has been applied to practically every form of splenic disease, meeting with but a variable amount of success. One can state that lesions of the spleen for which surgical therapy may be indicated are invariably associated with splenomegaly.

The clinical findings which lead to the diagnosis of an enlarged spleen will be discussed in the differential diagnosis later. Of the lesions which result in splenomegaly we can roughly divide them into three groups—the congenital splenomegaly, or the spleno-

megaly the result of a congenital lesion which has come to be known as familial, or haemolytic jaundice; secondly, the splenomegalies associated with definite blood lesions, such as pernicious anaemia and splenomyelogenous leukaemia; thirdly, the toxic diseases, such as malaria, kala-azar, and the ordinary long-continued pyogenic infections from other foci in the body.

With this classification, it is very doubtful where one should place one type of splenomegaly which yields fairly good results from surgical therapy. I refer to Banti's disease. It would appear that there is fairly good evidence for believing that one should include it in our third group of toxic spleens.

Of these three groups, surgery has most to offer in familial jaundice. This particular lesion depends for its absolute diagnosis on a blood examination, which determines the fragil-

ity of the red blood cells. In familial jaundice there is invariably a very marked increase in the fragility of the red blood cells in hypotonic salt solutions, and without this being present, one must hesitate before diagnosing familial jaundice. As further corroborative evidence, there is a history of many members of the family through generations, suffering from yellow skins and enlarged spleens. The first instance of this disease with which I came in contact some years ago, presented a problem in diagnosis which is very real, as this patient presented herself suffering from typical attacks of biliary colic and jaundice, the jaundice increasing at times, but never entirely disappearing. She had a large spleen, and a definite history of other members of her family being jaundiced. Other possible diagnoses were chronic interstitial pancreatitis and cholecystitis, with an associated cholangitis or calculous obstruction of the common duct. At operation this girl had cholelithiasis, with sub-acute inflammation in the gall bladder, the exacerbation of jaundice being the result of an oedema extending from the gall bladder to the common duct. Hence one must realize that gall stones are often associated with familial splenomegaly, and are directly related to it. However, any therapy directed purely to the biliary tract will not improve the patient's condition, except insofar as it removes the possibility of a biliary colic. The explanation of these stones, which are nearly always of the non-facetted, mulberry type, made up largely of bile pigments, appears to be that they are the result of the enormous increase of work thrown upon the liver, due to the increased flow of blood from the enlarged spleen entering the portal circulation. However, the pitfall can be avoided if one does a blood examination to determine the fragility of the red cells.

Banti's disease, or splenic anaemia, presents a surgical problem requiring very careful deliberation and a weighing of all facts, before deciding upon an operative procedure. Banti's disease appears to pass through various phases, the last and final stage being associated with a large spleen, with very marked peri-splenic adhesions to the surrounding viscera and the diaphragm particularly, accompanied by a cirrhosis of the liver, with ascites. Unfortunately it is in the stage where peri-splenic

adhesions have formed, that most of the cases come for surgical therapy. The diagnosis of Banti's splenic anaemia rests very largely upon the exclusion of other factors being responsible for the enlarged spleen. There are no characteristic blood changes. In the younger individual it may be confused with a von Jaksch's or Gaucher's splenomegaly, the latter being relatively rare lesions, and to all intents and purposes demanding the same deliberation; and the same indications are present for or against surgical intervention. The logic of operating upon an enlarged spleen in Banti's disease in the presence of ascites, is based upon the fact that by so doing one removes a terrific load from the portal circulation by cutting off the enormously increased flow into it from the splenic vein. Such cases, provided they survive the preliminary operative procedure, show an improvement. The difficulty in carrying these patients successfully through an operative ordeal rests very largely upon the degree of perisplenitis, because in some of these cases the adhesions are so great as to forbid proceeding with the removal, or are so extensive and vascular that after the spleen has been separated, the bleeding is exceedingly difficult, if not impossible, to control. For this reason one should never attempt any surgical intervention without first fortifying the patient by having available a suitable donor, and being prepared to do a blood transfusion without delay.

This leaves us with a large group of splenomegalies associated with the anaemias. Splenomyelogenous leukaemia is a disease in which the spleen represents a very small area of the pathological tissue. Therefore it seems illogical to believe that surgery has anything to offer in such cases. It has been suggested that, after a decrease in the size of the spleen following x-ray therapy, one should remove it. This appears to have no sound physiological basis. The diagnosis in this type of splenomegaly is corroborated if one makes a blood smear, because there will be found enormous numbers of myelocytes in every microscopic field.

With regard to the pernicious anaemia cases, having an associated splenomegaly, the results obtained from repeated blood transfusions, followed by splenectomy, leave much to be desired. Blood transfusion without splenectomy I feel offers as much hope to the patient as

transfusion followed by splenectomy, without the additional risk of a major abdominal operation. That one has any hope of curing what we take to be a true pernicious anaemia by any surgical therapy, I believe is without foundation. The value of blood transfusion in pernicious anaemia is not so much that we can hope to cure, but we relieve symptoms, and hurry the patient into a quiescent interval. Single transfusions I believe are of little value. Further, I feel that a transfusion of from four to six hundred c.c. of blood at one time is quite as valuable as a transfusion of a thousand c.c. In other words, I believe that two transfusions of four hundred c.c. each at an interval of some days, are of far greater value to the patient suffering from pernicious anaemia than is a single transfusion of a thousand c.c. but, despite seeing a large number of these cases, I have not known a single instance in which, apart from helping a few patients into an interval, with relief of some symptoms, when they appear to be better, there has been any real value from this procedure. Percy's published cases from Ochsner's clinic further dampen one's enthusiasm for splenectomy in this disease.

Apart from the consideration of Banti's disease, we have not mentioned the other splenomegalies of toxic or bacterial origin. Fortunately splenomegaly from malaria is now rare. Kala-azar does not exist in this area. Septic foci, however, are ever present, and may result in a continuously enlarged spleen. The treatment here of course, is obviously the search for such foci, and properly and effectively dealing with them, and if, waiting for a reasonable time after such foci have cleared up, the splenomegaly persists and is causing distress, then I think one is justified in advising surgical removal of the spleen.

In this discussion one must exclude the acute traumatism resulting from splenic injury, but there is a lesion of the spleen which presents an acute abdominal catastrophe that one must bear in mind. I refer to the wandering spleen, that is, a spleen in which the splenic vessels are unduly long, and which may be subject to torsion, producing an acute abdominal crisis, with a tender, palpable mass, which of course is the spleen tremendously engorged at first, and finally becoming gangrenous.

With regard to the kidney lesions which pre-

sent diagnostic problems in upper abdominal disease, we again can roughly group these into congenital lesions, mechanical causes, inflammatory lesions, new growths, and cysts. Of the congenital lesions in the kidney, one must be ever on guard for the anomalies of development, such as horse-shoe kidney, abnormally located kidneys, or the absence of one kidney, because it has aptly been said that a man may live without brains, but no one has ever been known to live without a kidney. The most striking congenital tumour is that due to congenital cystic disease, which is the result of a failure in proper union between the meta- and mesonephros. Apart from presenting bilateral renal tumours, these patients suffer no disability, despite the fact that on gross section of the kidneys which are usually found at autopsy, having been unsuspected during life, there appears to be an extraordinarily small volume of actively secreting kidney tissue. The bilateral character of these tumours, and the absence of symptoms, is probably the most valuable factor leading to the proper diagnosis, should it be discovered clinically.

One other cause of renal tumour which appears to be congenital is a myxosarcoma. We have had one case in an infant, who at the age of eight months had the left kidney removed. The tumour mass was the size of a foetal head, and histologically showed the structure of a myxosarcoma. The patient is alive and well seven years after operation. The clinical characteristic in a young child which leads one to this diagnosis is hematuria. A further congenital factor which must always be considered in any abdominal tumour is the possibility of the kidney lying in an abnormal position, the commonest being in the true pelvis, or just over the sacro-iliac articulation. Such a kidney is subject to all the lesions of a normally situated kidney.

Of our mechanical lesions, we have the unduly mobile, or true floating or wandering kidney. The floating or wandering kidney, apart from the psychic symptoms which are common to it, and the truly mobile kidney, produce very few real clinical symptoms. It is not so prone to torsion as is the wandering spleen. The unduly mobile kidney, however, which when palpated is of normal size, probably presents a basis for a functional, rather than for

a true mechanical disease. Occasionally, as a result of the persistence of some of the vessels arising from the caudal segment during embryonic life, there remains an aberrant renal artery running to the lower pole of the kidney, over which, during the extreme excursions of this organ, the ureter becomes kinked, producing a temporary ureteral obstruction, resulting in renal pain. This we call Dietl's crisis. Subsequently this causes a hydronephrosis, giving a palpable renal tumour with destruction of the kidney tissue. Intermittent hydronephrosis is characterized by the passage of an unduly large amount of pale, limpid urine, of low specific gravity, soon after emptying the bladder of a normal quantity of normal looking urine, such an occurrence being followed by a disappearance or diminution in size of the tumour mass in the area. Such tumours are painless, freely movable, because of the absence of infection and its associated peri-nephric inflammatory adhesions. There are no abnormal elements in the urine, the one pathological factor being the very low specific gravity.

Of the inflammatory lesions, chronic nephritis presents a problem which has a surgical aspect, when there occurs varicosity of one of the veins in a pyramid, the result of scarring from the interstitial fibrosis. This can be diagnosed accurately only with the kidney widely open, the exploration probably having been undertaken to exclude malignancy. When this is discovered, the application of the actual cautery to the bleeding point is followed by relief of the haemorrhage. This I believe is probably responsible for a large number of cases of so-called essential haematuria.

In the infections which are confined to the pelvis of the kidney, having their origin from peri-renal or peri-ureteral lymphatics, probably originating in a diseased appendix, or those which have gone still farther afield and have involved the pyramids with the pelvis, resulting in the disease known as pyelo-nephritis, surgery obviously has nothing to offer, insofar as local operation on the kidney is concerned. However, should such a disease progress in the kidney to the stage of urinary stasis, because of inflammatory obstruction of the ureter, and subsequent formation of calculi, it then becomes a surgical problem. In a certain percentage of such cases the inflammatory reaction occurs

without the formation of calculi, followed by the destruction of a good deal of kidney substance, and a tremendous amount of fibrosis in the cortex, resulting in a large, fibrous capsule containing pus, having little or no renal function, known as a pyo-nephrosis, or, by virtue of the direct lymphatic drainage between the kidney itself and the peri-nephric fat, infection may reach this poorly resistant area, and proceed to the formation of an abscess, and a clinical condition which we term peri-nephric suppuration.

There is one interesting diagnostic point which makes the certainty of peri-nephric suppuration more or less absolute. I refer to the fact that on an x-ray plate there is noticed a defect in the lateral margin of the ilio-psoas muscle at the site of the abscess. This does not occur in an enlarged gall bladder, which is often confused with peri-nephric suppuration.

Such inflammatory lesions must depend on surgical intervention for their relief. Whether a simple drainage, or nephrectomy and drainage will be the operation of choice, depends upon, first, the condition of the patient; second, the condition of the other kidney; and third, the value, from a renal efficiency standpoint, of the involved kidney, should it recover from this disease. That these lesions are the result of pyogenic organisms, might lead one to believe that there would have to be a constitutional disturbance, before such a pathological end product could be reached. However, we must bear in mind that this is not necessary, because such organisms on reaching the kidney may be of a very low virulence, and produce, from the inception of the lesion, a chronic inflammatory reaction, with very little constitutional disturbance.

A further inflammatory lesion which I am convinced must be treated surgically is tuberculosis of the kidney. A satisfactory end result depends on early diagnosis and intervention. It is commonly supposed that a primary urinary cystitis is not of infrequent occurrence. I believe that, in the absence of catheterization of the bladder, or a definite pathological lesion causing obstruction to the urethra, a primary urinary cystitis is extremely rare, particularly in the male. The value of such a belief rests upon the fact that one will never be content with a diagnosis of primary cystitis until all

our possibilities of investigation have been exhausted in an effort to determine the presence or absence of a lesion situated elsewhere in the genito-urinary tract. In other words, increased frequency of urination, which is the earliest sign of renal tuberculosis, must never be considered lightly, even though a microscopic and chemical examination of the urine reveals nothing abnormal. If we investigate abnormalities of urination at this stage of their occurrence I am convinced that the end results of surgical therapy in renal lesions will be vastly improved.

Of the new growths in the kidney occurring in adult life, the so-called hypernephroma forms the vast majority, but one must not forget that carcinoma arising in the substance of the kidney itself, and papillary carcinoma arising in the pelvis of the kidney, are possible diagnoses. The earliest sign of new growth in over eighty per cent. of the cases, is hematuria. Such is not the only cause of hematuria in the urinary tract, but it should be our suspicion that all hematuria is due to renal malignancy until proven otherwise. If such an attitude were adopted, it would avoid a mistake such as I recently witnessed, of persistently diagnosing renal calculus, despite the absence of any shadow of a calculus on an x-ray plate, solely upon the fact that the individual had repeated renal colic, associated with bleeding. We must remember that the passage of clot from the pelvis of the kidney down the ureter, will give just as intense colicky pain as if a stone were being passed. However, the volume of blood usually passed as a result of a new growth is infinitely greater than that associated with the passage of a foreign body down the ureter.

With these kidney lesions which require surgical interference for their relief, we must formulate some method for their clinical differentiation. There are three outstanding symptoms indicative of pathological change in the urinary tract. I refer to increased frequency of micturition, pain, and hematuria. Again, recalling the fact that we believe that primary urinary cystitis is rare, and excluding pathological lesions which might obstruct the urethra, we must remember that increased urinary frequency is not the result of an inflamed bladder, except it be secondary to a lesion situated higher up in the genito-urinary

tract; hence increased frequency of urination must be considered a very serious omen of primary renal disease unless there is systemic evidence of a cardio-renal disturbance. Such a finding points to an inflammatory lesion in the kidney, involving the cortex, and not necessarily communicating with the pelvis, and is characteristic of an early tuberculosis. These patients may not consult a physician until there is some slight evidence of abnormal urinary findings, in the way of an occasional pus cell, and probably a few casts, but the urine will be acid, and if microscopic examination of a thoroughly centrifuged specimen fails to show the presence of tubercle bacilli, then some of this urine must be inoculated intra-peritoneally into a guinea-pig. To wait until, by autopsy of this pig, one can confirm or exclude the presence of tubercle bacilli, requires a delay of six weeks. In such an event we have, however, a further aid, in that, with the cystoscope and a catheter up to the pelvis of the kidney, thorium may be injected, and stereoscopic x-ray taken. In a recent case it was possible to trace, from the lower calyx of the right kidney, a marked sinus, ending in a pocket measuring roughly a centimetre in diameter. This finding, together with our clinical history, was considered sufficient evidence to warrant an exploratory operation. At this time, with the kidney bared in the operative wound, there was no external evidence of disease, but after taking the proper precautions, the kidney was split open, and in the lower pole was found a small, early, renal tuberculosis, with a very small, irregular sinus burrowing and opening into the lower calyx. Cystoscopic examination in the more advanced cases gives further evidence of the presence of a tuberculous infection, as opposed to a pyogenic infection, in the fact that the ureteral opening is reddened, indurated, and very often shows the presence of small tubercles in its immediate vicinity. By means of the cystoscope and ureteral catheters, one is able to obtain the additional knowledge of the functional efficiency of the opposite kidney.

Hematuria, on the other hand, must always be considered the result of malignancy until proven otherwise. It is true that it may originate in the bladder in a so-called villous tumour, and this must be determined by visual

inspection with the cystoscope. This latter, however, is characterized by intermittent, rather than continuous hematuria. Ureteral catheterization in renal tumours, and differential kidney function, will show us the side from which the blood is coming, but we must remember that so far as function is concerned, there may be little or no impairment in a kidney the seat of an early tuberculosis or malignant new growth, because of the fact that it may involve only a very small area of an organ which is supplied with an enormous volume of reserve tissue; hence a normal renal efficiency test is no contra-indication to maintaining our diagnosis; in fact, blood coming from one kidney, a normal pyelogram, a normal kidney function, no abnormal constituents in the urine, apart from the blood, is not sufficient evidence to justify a negative diagnosis of growth. In other words, hematuria which cannot be explained except on the assumption that it is due to a new growth, and in which it is impossible to corroborate that diagnosis clinically, is sufficient justification for advising an exploration of the suspected kidney, and in so doing I feel that we are giving our patient the very best possible advice, to say nothing of greatly improving our prognosis, should he prove to be suffering from a renal tuberculosis or new growth in the kidney. Occasionally, by means of the pyelogram, one can gain some corroborative evidence of new growth by finding a deformity of the renal pelvis the result of the distortion of the calyx and pelvis, due to the presence of the tumour.

Pain, renal in origin, is, as elsewhere, of two types—continuous and intermittent. Intermittent pain is the outstanding characteristic of the movement of foreign bodies down the ureter, with the associated spasm of its muscular coat. Such foreign bodies, we must remember, include more than stone. They include clots from new growth, caseous material from a tuberculous kidney, and inflammatory products from the pyo-nephrotic kidney.

Thus, to sum up the three cardinal symptoms in renal disease. Increased frequency of urination should lead one to the suspicion of a renal tuberculosis until proven otherwise. Intermittent pain leads one to suspect the obstruction of the lumen of the ureter, either due to the passage of calculi, blood clots, or inflam-

matory products, or to its obstruction from without, by means of an aberrant renal vessel. Hematuria is of extremely serious import, and should always be considered to be due to a renal new growth until proven otherwise, but may be the result of a renal varix.

This leaves us with the differentiation of renal and splenic tumours. The one apparently easy method would be to subject all patients with a tumour in the upper abdomen to a cystoscopic examination with ureteral catheterization, followed by a pyelogram. An abnormal urine or an irregular pyelogram helps to exclude the possibility of a splenic, gall bladder or hepatic tumour, because we know that to diagnose two independent lesions in the same individual is to be wrong in over ninety-five per cent. of instances. However, as has been pointed out previously, even with very serious lesions in the kidney resulting in tumour, there may be no abnormality in the urinary findings, in the efficiency of the suspected kidney, or in the pyelogram. This brings us back to the well-known fact, which we all so often forget, that there is no means of examination, there is no single mechanical procedure, which is comparable to a careful history and a thorough physical examination. There is a statement repeatedly made that any tumour which crosses the midline of the body, arising in the upper abdomen, is not renal in origin. A case recently in the General Hospital has proven the fallacy of this statement, where a tumour extending well down below the anterior superior spine of the ilium, arising in the right upper abdomen filling the whole area, extended for three inches to the left of the middle line. The fact that it transgressed the middle line made one hesitate to diagnose that it was renal in origin. However, at operation it proved to be so, and the explanation appears to be that when a renal tumour reaches sufficient dimensions to be supported by the ribs above, and the wing of the ilium below, instead of bulging into the flank, it leaves the normal contour unaltered and bulges across the mid-line of the abdomen. A splenic tumour is not resonant on percussion. A renal tumour, on the other hand, we must remember may so displace the colon and flatten it against the anterior abdominal wall, that to all intents and purposes we cannot elicit any resonance. This difficulty, however, can be overcome in a

certain percentage of cases by inflating the colon, using the ordinary atomizer bulb, with a tube inserted in the rectum. This will so distend the colon that its relationship to the tumour mass can thus be made out. Further, the splenic and renal tumours are often continuous with the left lobe of the liver. The giving of the blue and white components of a Seidlitz powder separately will so distend the stomach as to produce an area of resonance between the liver and an enlarged spleen. This will not apply if the tumour is renal in origin. On the right side this relationship to the colon is of extreme importance in differentiating a right renal tumour from a Reidel's lobe of the liver. This relation of the colon to the tumour mass thus affords very valuable information. Its exact relationship is also determined by means of a barium enema and stereoscopic X-ray plates. To this one might add pneumo-peritoneum. A tumour arising in the spleen almost always carries the splenic flexure of the colon to a lower level than is normal. A tumour arising in the kidney almost invariably leaves the splenic flexure in its original position, but this is not constantly true. However, the times in which the splenic flexure is depressed as the result of a renal tumour are so infrequent as to be practically negligible. The descending colon is usually more medial than normal in a kidney tumour, while the splenic tumour displaces it down and out.

A further tumour on one occasion caused me great concern in differential diagnosis. I refer to a pancreatic cyst which was pedunculated. This pancreatic cyst could be displaced under the left costal margin. The patient's statement that she felt sure that it altered in size, confirmed our suspicion that it was a hydronephrotic kidney. However, this erroneous diagnosis was cleared up by means of a pyelogram, whereby the left kidney was found to be in normal position, and possessed a normal pelvis and calyces, and could not be displaced.

To summarize: (1) Splenic lesions present-

ing surgical problems are always associated with splenomegaly.

(2) Familial jaundice and Banti's splenic anaemia are most favourably influenced by splenectomy.

(3) The diagnosis of familial jaundice rests absolutely on the demonstration of increased fragility of the red blood cells. The diagnosis of Banti's disease rests upon the elimination of any other cause for the splenomegaly.

(4) Splenic tumours almost invariably depress the splenic flexure of the colon; practically always cross the middle line if enlarged to any appreciable extent, the direction of the enlargement being downwards and to the right.

(5) A renal tumour is resonant in front, but may so press upon the colon as to render it impossible of demonstration, except after inflation of the colon with air.

(6) Renal tumours practically never depress the splenic flexure of the colon.

(7) Increased frequency of urination must be considered of very serious import, and cause suspicion of a renal lesion until proven otherwise.

(8) Hematuria must be considered to be due to renal new growth until proven otherwise.

(9) Pain is the result of the passage of calculi and inflammatory debris through the lumen of the ureter, or due to the obstruction of the ureter by them, or to obstruction of the ureter from without, most commonly due to an aberrant renal vessel.

(10) Renal tumour and renal tuberculosis may exist in the presence of normal urinary findings, normal renal function, and a normal pyelogram.

(11) Carefully taken and analyzed history, combined with a complete and meticulously painstaking physical examination, is the most valuable means of diagnosis, and cannot be supplanted by any single laboratory procedure.

(12) Ureteral catheterization to determine differential kidney function should always precede any operation on the kidney.

DISCUSSION ON RENAL AND SPLENIC LESIONS

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IN opening the discussion on Dr. Graham's most excellent paper, I wish to congratulate him on the thoroughness with which he has prepared it, and also the way he has presented it.

Anyone who is trying to differentiate between a kidney and an upper abdominal lesion, particularly the man who is going to take the responsibility of the operation, will realize the seriousness of the situation on account of the totally different avenues of approach. To diagnose one abdominal condition for another sometimes means little, but to diagnose an intra-peritoneal for an extra-peritoneal condition, especially with a patient in bad condition, frequently means two operations, which is sometimes the difference between life and death. Therefore when one is confronted with a large tumour which may be spleen or kidney, and the patient is in poor condition, especially from a cardiac lesion, as well as other things, the surgeon has the courage of his convictions severely tested before making his incision, and should leave no stone unturned in order to establish a positive diagnosis.

In splenic disease, the diagnosis hinges largely on the blood picture, but here, as in other methods of diagnosis, we all realize how difficult it sometimes is. I have in mind one case of left-sided tumour, in which the blood report could not be taken as final, and to show how one has to resort to other means, I might state this case fully:—Male, age 25, with a dense stricture, complaining of difficulty in voiding and frequency of urination. He had a large mass on the left side of his abdomen. Temperature around 99°, R.B.C. 4,000,000. The lymphocytes and polymorphs normal. The tumour passed the mid-line and felt like a spleen. One could feel a distinct notch. Percussion of the tumour elicited a dull note. Many good diagnosticians said they thought it was a spleen. A pneumo-peritoneum was done, and gas seemed to surround the tumour. Two

eminent radiologists pronounced it spleen, in their opinion. Cystoscopy at first could not be done on account of the stricture. This was dilated with difficulty, and ureters catheterized, and pyelogram done. There was no function from this side. Pure pus exuded from the ureter of the same side, and a pyelogram proved the tumour to be renal in origin.

In dealing with these tumours, one is liable to be misled by the presence of haematuria in Banti's anaemia. This, as well as haematemesis occurs occasionally. In fact the latter is quite common, and is sometimes the symptom for which the patient consults his physician. It is very likely caused from congestion.

In regard to the barium enema: this is most useful when for some reason a catheter cannot be passed to the kidney. I have had this done on a great many patients, and I have found that almost invariably, in the large kidneys, the mass comes so far forward that it displaces the colon to the mid line, very occasionally outwards, and hardly ever does it lie in front of the kidney. This is not in accordance with our text book descriptions of a tympanitic colon over the kidney. In small kidney tumours this is not the case. The colon then lies over the kidney.

In congenital cystic kidneys, I have found that they may have a normal phthalein function, and, strange to say, normal pyelogram, but they show diminished function with the water tests, especially in their ability to eliminate fluids early.

There are a couple of points in Dr. Graham's paper in which I concur heartily. I refer to *early* and *thorough* investigation of frequency of urination, and haematuria, and persisting with the investigation until the cause is known, even to the extent of exploratory nephrotomy. I might also add, suspecting every case of chronic epididymitis as secondary to a tuberculous kidney. Renal tuberculosis and renal new growth have such disastrous effects if left

unrecognized, and the prognosis is so good, comparatively, if removed early, that I cannot urge too strongly its adoption. We have so many deplorable cases come to our clinic complaining of frequency of urination, who, when examined, have large pyonephroses, either pyogenic or tuberculous, and so many cases of neglected haematuria which prove to be malignant disease of the kidney or bladder, that Dr. Graham's urgent appeal for thoroughness seems to be very timely.

However, exploring a kidney for unexplained haematuria is not so easy as he would lead you to believe. It is worse than hunting for the proverbial needle in a hay stack. A recent case impressed itself on me. A woman was bleeding profusely from the right kidney for a year. We could find no cause. After weighing the case thoroughly, the kidney was explored and opened from end to end into the pelvis, thinking we might find a papilloma, but nothing was found, and it had to be sewn up again, and she is still bleeding. Finding the spot and cauterizing it is not so very easy, especially "finding the spot," but the point is, our fears are dispelled, for one can be practically sure she has no malignancy, and I can assure her that the disease is not so serious.

Regarding the finding of more than one pathological condition in the same patient, I think it is more common than Dr. Graham thinks, especially in urological cases. For instance, as he says, a tuberculous kidney is nearly always secondary to tuberculosis elsewhere in the body, and these cases have sometimes very extensive primary lesions, particularly pulmonary and spinal. For obvious reasons it is of the utmost importance that we should know all about them, and particularly is this so of the spine. I have also seen an

unrecognized gastric ulcer of the posterior wall of the stomach perforate into the lesser sac of the peritoneum three days after nephrectomy for pyonephrosis, also a hypernephroma, with a stone and pyonephrosis in the same kidney.

There are many other points which one might discuss in this very thorough paper, such as, for instance, pain. I think ureteral strictures and kinks play a very great rôle in obscure abdominal pains, and I hope to have the privilege of saying something about these at some future time. Another possibility is the presence of very large ureters, an example of which I saw last week, but time will not permit.

In conclusion, I agree with Dr. Graham that a careful history and examination is a very important procedure, but I am tempted to be bold enough to challenge his last statement, as far as kidney disease is concerned, on account of the fact that a thorough urological examination does so much in establishing a diagnosis. In support of this statement, I might mention a case of a right-sided hydronephrosis in the service of the late Dr. Bingham. This case was examined by many, including no less authorities than Dr. Bingham himself and Dr. de Quervain of Switzerland, both recognized as past masters in the art of physical examination. Dr. Bingham diagnosed it as a cyst of the liver and Dr. de Quervain as a cyst of the pancreas. A urological examination was thought to be unnecessary. Laparotomy was performed and a hydronephrosis found, with a totally occluded ureter.

However, I think we all agree that every possible means of diagnosis should be resorted to, and even then we will often have to resort to an exploratory incision to establish the diagnosis.

Premature Presbyopia.—William F. Bonner, Wilmington, Del., asserts that there is a relationship between hyperopia and premature presbyopia; occurrence of uncorrectable poor near vision; contracted ocular fields associated with general and focal infections; monocular and binocular color blindness occurs; exor-

phoria couples with good depth perception, esophoria and hyperopia with poor depth perception. Many cases of general infections, cardiorenal, neuropsychiatric, and endonasal conditions are found among those who have premature presbyopia.—*Jour. Am. Med. Ass.*, Dec. 1, 1923.

THE ACUTE ABDOMEN*

SYMPTOMATOLOGY AND PATHOLOGY

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PAIN, vomiting and collapse characterize any of those catastrophies of the abdominal viscera grouped under the caption of Acute Abdomen. Their nature, character, and mode of appearance are distinctive of the organ involved and the location of the lesion, when employed in differential diagnosis in association with other means and methods of investigation, and enable a correct conclusion, and prompt surgical intervention, usually, with few exceptions.

Any of the following conditions, alone or in possible combination may be found in such emergencies:—(1) Perforated gastric or duodenal ulcer; (2) Appendicitis; (3) Biliary colic; (4) Intestinal colic; (5) Ruptured gall bladder; (6) Ruptured tubal pregnancy; (7) Torsion of pedicle of tumour; (8) Acute pancreatitis; (9) Intussusception; (10) Ruptured ovarian cyst; (11) Mesenteric thrombosis; (12) Torsion of spleen; (13) Displaced kidney; (14) Internal Hernia; (15) Volvulus; (16) Impaction of small intestine by gall stone; (17) Ruptured pyosalpinx; (18) Acute ileus; (19) Diaphragmatic pleuritis.

With the exceptions of mesenteric thrombosis and torsion of the spleen, it has been my fortune to have encountered them all, and in addition I had a case of torsion of the spermatic cord and gangrenous testicle many years ago which, though very rare I think should be considered, along with other generally recognized causes of acute abdomen; strangulated herniæ also should be included as well.

With respect to pain as a symptom, we must consider its mode of onset, time of onset, location, character and its "peritonism."

Mode of onset.—Intense, suddenly developed pain characterizes perforation of a gastric or

duodenal ulcer, appendicitis, ruptured tubal pregnancy, ruptured pyo-salpinx and ruptured gall bladder, and in some cases of intussusception. Pain of progressively growing intensity, reaching its fullness quickly, characterizes paroxysms of hepatic and renal colic, twisted ovarian tumour, intussusception and subphrenic pleuritis. Pain slowly reaching intensity occurs in intestinal colic, internal hernia, volvulus, displaced kidney, and splenic torsion.

Time of onset.—Pain developing in the early morning, perhaps rousing out of sleep, in region of umbilicus, accompanied by vomiting, typifies appendicitis, and does not resemble any other acute abdominal affection; appendicitis, however, may appear at any time and under any condition. Renal colic always appears during exercise and during the day. Biliary colic practically always comes on after a full meal or drink, in the later part of the day; one very seldom sees a biliary colic in the morning. Ruptured gastric or duodenal ulcer always happens after a meal and when actively engaged. Ruptured tubal pregnancy happens during the day time and accompanying muscular effort. Torsion of ovarian tumour, spleen or kidney, volvulus and internal hernia, occur during the day and accompanying active muscular movements.

Location of pain.—When first at or near the umbilicus, we suspect appendicitis, pancreatitis, internal hernia, intussusception, gall stone, impaction of small bowel, or ruptured ulcer, gastric or duodenal. If it focuses in the right iliac fossa, at McBurney's point we may almost surely decide the diagnosis. If it diffuses over the abdomen a perforated ulcer comes to one's mind first. If in the upper right epigastrium, the tip of xiphoid tender to the finger tip's pressure, and pain shoots around right side of trunk and referred to the scapular region, we are quite sure of hepatic colic. Pain radiating

*Being part of a Symposium on "The Acute Abdomen" at the Annual Meeting of New Brunswick Medical Society held at St. John, N.B., July, 1923.

from the region of the false ribs, shooting into the loin, hypogastrium, penis, testicles and thighs means renal colic. Pain located a little to the left of the median line between the umbilicus and xiphoid tip accompanies ruptured gastric ulcer; if to the right, a ruptured duodenal ulcer. If below the umbilicus, median or lateral suspect a ruptured fallopian tube. Pains of a twisted viscera are located over the organ involved; if a (right) kidney it is relieved by assuming the dorsal decubitus, and reduction of same attempted by manipulation. In any case of displaced or twisted viscera we expect acute congestion and tenderness over the involved organ with consequent diffusion of peritonism.

Character of pain.—That of ruptured ulcer is agonizing, as though hot fluid were pouring into the abdomen burning or scalding. Of gall stones, vice-like, griping of the right side, degrees of intensity being governed by size, and location of the stone, and the contents of gall bladder and upper bowel and stomach. Of renal stone, sharp, cutting, lancinating. Of twisted kidney, spleen or ovarian pedicle, a more gradually intensifying ache. If a ruptured tubal pregnancy, it may be of any degree of intensity, from a momentary sharp twinge to a pistol-shot-like sensation; it may be very slight, or end in syncope. Of intussusception and volvulus, intermittent, griping and progressively intensive. Intestinal colic, umbilical in location, intermittent, griping and relieved by deep pressure. Subphrenic pleuritis, sharp, shooting, encircling the body at the insertion of the diaphragm, so acutely severe as to hold the trunk in vice-like grip making respiratory action of diaphragm exquisitely painful. Appendicitis, any degree of tenderness, depending on the stage and nature of underlying pathology, but always at McBurney's point.

Peritonism.—In ruptured ulcer early over seat of ulcer. The escape of bowel contents—the nature and amount governing—soon causes diffuse peritoneal tenderness, and unless immediately operated on—frank peritonitis is inevitable. In intussusception and hernial obstruction of bowel, the pain is paroxysmal. A tight internal hernia or an impacted bowel from a gall stone may be tender to pressure and palpable.

Vomiting is symptomatic of all severe ab-

dominal disasters. In any form of intestinal obstruction it may be quite continuous. Frequent and repeated vomiting always accompanies pancreatitis, hepatic and renal colic, and all types of peritonitis. In the colics cited it is accompanied by retching and nausea. In intestinal obstruction and peritonitis it is not attended with retching, being more like an effortless syphoning of the stomach contents. The vomitus accompanying perforated ulcers shows admixture of blood with food. Bile content of vomitus is seen in colics, torsions and appendicitis. In intestinal obstruction the vomitus is faecal and alkaline, and in the later stages of peritonitis it is dark brown or black from admixture of blood in various stages of digestion.

Collapse.—The intensity of collapse indicates the gravity of any case of acute abdomen, its time of appearance, progressiveness and depth, evidencing either the result of pain or haemorrhage or both. It is immediate and intense in perforation of the stomach, duodenum, gall-bladder, appendix or tube. Increasing collapse accompanies renal or hepatic colic, ruptured tubal pregnancy or haemorrhage—collapse, in obstruction of the bowel and in peritonitis. The severity of collapse in perforated ulcer may result fatally before surgical measures can be provided, and full doses of morphine or the continuous administration of an anaesthetic from its inception to the time of operation may be the only means of obviating such shock. The degree of collapse from appendicitis, colic, internal hernia and intussusception is variable, and may be anywhere from mild to intense, and may assume different characteristics. For instance in a perforated appendix we may have a degree of collapse followed by quiescence, and disappearance practically of all symptoms, and a period of well-being develop only to be promptly followed by a destructive peritonitis. The collapse of acute pancreatitis, and that of strangulated hernia is most profound; the former is not associated with muscular rigidity, and the latter is obvious in location.

Muscular rigidity of abdominal walls.—Board-like rigidity soon develops in perforated gastric or duodenal ulcer, along with inhibited respiratory action of abdominal wall; the same occurs in peritonitis from any per-

foration in any part of the alimentary canal below the diaphragm. The hard, retracted abdominal wall features of lead, biliary, intestinal and renal colic are not so pronounced in intestinal obstruction, torsioned pedicles or ruptured tubes, at least not until secondary peritonitis develops, but may be seen in diaphragmatic pleuritis and also in some cases of thoracic inflammations, notably pneumonia and pleurisy, in the young most commonly, though also in adults. The abdominal tension and referred pains of intrathoracic lesions are attributable physiologically to the fact that the six lower intercostal nerves supply not only the pleurae but also the abdominal muscles; the phrenic nerve likewise by its distribution contributing as a medium of referred pain. Who has not seen cases of pneumonia simulating appen-

dicitis, cholecystitis, pericarditis, and angina pectoris?; and who has not been kept anxious for several days perhaps in trying to figure out the meaning of a central pneumonia? And has it not happened that some impetuous surgeon has done an appendectomy in a young person under such misapprehension, only to find later that his patient was a victim to his ignorance, and the child's chest filled with a fatal empyema?

The location of this rigidity in relation to the umbilicus is significant, and is indicative of a lesion of the underlying parts so immobilized. Rigidity of the lower right rectus often clinches the diagnosis in a doubtful atypical appendicitis. Pancreatitis is the only exception of an inflammatory lesion of the abdominal viscera in which muscular rigidity does not materialize.

A FORMULA FOR EXPRESSING BALANCE IN THE DIABETIC ORGANISM

A PRELIMINARY COMMUNICATION*

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THE arduous task of designing individual diabetic diets and noting the varying results, supplemented and augmented by careful correlation, has convinced me that a definite balance among the various factors must exist. After numerous unsuccessful attempts to obtain a mathematical expression for this balance, the following formula was designed which appears to adequately satisfy all the requirements:

$$\frac{A + B}{C + D} = E$$

Where *A* is the rate of calorie production from glucose per 100 cc. of blood.

B is the rate of calorie production from glycerine per 100 cc. of blood.

C is the gram molecules of glucose per 100 cc. of blood.

D is the gram molecules of glycerine per 100 cc. of blood.

E is the concentration of insulin in the blood expressed in metabolic units per 100 cc. of blood.

Unfortunately no local equipment for determining the respiratory quotient has been available so that it has been impossible to give $A + B$ a numerical value for a corresponding value of $C + D$. However, a recent article by Rabinowitch¹ reports a series of values from which $A + B$ can be obtained approximately for corresponding values of $C + D$, permitting a rough test of the expression. From the R.Q. the percentage of carbohydrates being burned was obtained from standard tables². This value was assigned to "A". One tenth of the value given for the fat percentage was assigned to "B". The effect of the protein error was considered insufficient to materially affect the

*From the Laboratories of the Vancouver General Hospital

relationship and for the same reason "D" was given a zero value. The value for the blood sugar was assigned to "C". The results of applying this formula to certain of Rabinowitch's series is found in the following tables. In each table columns "1", "2" and "7" are taken directly from Rabinowitch's article; "3" (corresponding to A of the formula) and "4" are obtained from standard tables²; "5" (corresponding to B of the formula) is one tenth of the fat; "6" is the sum of "3" and "5"; "8" is the value obtained for "E" by the formula.

TABLE 1.

1	2	3	4	5	6	7	8
Time	R.Q.	CHO %	Fat %	Gly- cerine %	CHO+ Glycerine %	Blood Sugar %	E
0	.791	28.9	71.1	7.1	36.0	.121	297
15 min.	.799	31.7	68.3	6.8	38.5	.172	224
30 "	.851	49.3	50.7	5.1	54.4	.196	277
60 "	.863	53.4	46.6	4.7	58.1	.260	223
120 "	.869	55.5	44.5	4.5	60.0	.250	240
150 "	.852	49.7	50.3	5.0	54.7	.247	221
180 "	.870	55.8	44.2	4.4	60.2	.240	251

Table I. (Rabinowitch table 7) shows the effect of giving a large dose of glucose to a mild diabetic. It will be noted that the values for "E" are very constant in spite of the fact that the (A + B) and the B.S. each vary about 100%. It immediately reminds one of the fixation in the specific gravity of the urine in certain types of nephritis. Here it suggests a maximum rate of insulin secretion which cannot be increased in response to an increased load.

TABLE 2.

1	2	3	4	5	6	7	8
Time	R.Q.	CHO %	Fat %	Gly- cerine %	CHO+ Glycerine %	Blood Sugar %	E
0	.781	25.5	74.5	7.5	32.0	.071	451
15 min.	.779	24.9	75.1	7.5	32.4	.080	405
30 "	.794	30.0	70.0	7.0	37.0	.098	377
60 "	.875	57.5	42.5	4.3	61.8	.136	455
120 "	.882	59.9	40.1	4.0	63.9	.130	491
150 "	.847	48.0	52.0	5.2	53.2	.119	447
180 "	.840	45.6	54.4	5.4	51.0	.114	447

Table 2 (Rabinowitch table 7) shows the result of repeating the same test upon the same patient, one hour after the administration of 16 units of insulin. There appears the same fixation as before but this time at a higher level.

The insulin preparation roughly doubled the concentration of insulin in the blood.

TABLE 3.

1	2	3	4	5	6	7	8
Time	R.Q.	CHO %	Fat %	Gly- cerine %	CHO+ Glycerine %	Blood Sugar %	E
0	.750	15.0	85.0	8.5	23.5	.164	143
10 min.	.764	19.8	80.2	8.0	27.8	.180	154
30 "	.820	38.8	61.2	6.1	44.9	.232	193
60 "	.841	45.9	54.1	5.4	51.3	.226	227
90 "	.849	48.7	51.3	5.1	53.8	.194	277
100 "	.840	45.6	54.4	5.4	51.0	.191	267
130 "	.831	42.5	57.5	5.7	58.2	.145	401
160 "	.839	45.3	54.7	5.5	50.8	.120	423
190 "	.835	43.9	56.1	5.6	49.5	.098	505

Table 3 (Rabinowitch table 8) shows the effect of a smaller dose of glucose upon a severe case in which 16 units of insulin were given 90 minutes after the glucose was taken. In this case "E" commences at a lower level than in the previous case. In response to stimulation of the glucose there is a definite increase in its value. About one hour after the administration of the insulin it assumes a value similar to the last case.

TABLE 4.

1	2	3	4	5	6	7	8
Time	R.Q.	CHO %	Fat %	Gly- cerine %	CHO+ Glycerine %	Blood Sugar %	E
0	.724	6.2	93.8	9.4	15.6	.277	56
15 min.	.750	15.0	85.0	8.5	23.5	.243	97
30 "	.764	19.8	80.2	8.0	27.8	.217	128
45 "	.782	25.9	74.1	7.4	33.3	.212	157
60 "	.786	27.2	72.8	7.3	34.5	.192	180
120 "	.793	19.6	70.4	7.0	26.6	.115	231
180 "	.804	33.4	66.6	6.7	40.1	.080	500

Table 4 (Rabinowitch table 4) shows the result in a severe case in which the glucose and insulin are administered simultaneously. The value of "E" commences at the lowest level of all but rises as high as in the other two.

The normal R.Q. series of Benedict³ may be used to obtain some idea of the normal range of "E". Since these determinations were made on individuals in the post-absorptive state it can be assumed that the blood sugar ranged between .090—.100 per cent. If all the cases are included "E" would have a range from about 150 to 1000. To permit the simultaneously extreme ranges of both the R.Q. and the blood sugar is hardly justified in the normal and so

the mean R. Q. was assumed and the blood sugar was permitted to range as above. This probably expresses the normal range for "E" and covers the values from 400 to 600. It is interesting to note that before the administration of insulin all the above cases commenced below this range, but following the administration of insulin they all came within it.

Although sufficient time has not been available to follow completely the various relations that the above formula suggest, the examination so far possible indicates for it a very

extensive application. If the expression proves sound and the apparent equilibrium exists, it affords an accurate method of determining the metabolic value of commercial preparations of insulin. Further investigation of the various ramifications is in progress for future reports.

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INSULIN TREATMENT IN DIABETES IN CHILDREN*

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THE treatment of diabetes in children has in the past presented insuperable difficulties. Prior to the elaboration of Allen's work most observers agreed that treatment of diabetes in children was useless. So great an authority as von Noorden declared that in children, with rare exceptions, the disease allowed no respite. Allen's work has proven the possibility of mitigating the symptoms and retarding the progress of the disease even in juvenile cases, by suitable dietetic measures. The rigid diets indispensable to attain these ends, however, entail a state of chronic under-nutrition in the patient which is incompatible with growth.

Two cases of our series will perhaps best illustrate the failure of dietetic treatment alone in children. These two cases are exceptional in the fidelity with which both parent and child carried out instructions and remained faithful to the diet. The harshness of the diet and the semi-invalid state of many of the young patients frequently make the parents choose a short and less restricted life for the child, rather than a prolonged fast.

(1) J. R.—Aet. 6. At $4\frac{1}{2}$ years of age this

child had tonsillitis followed by rapid loss of weight. Physical examination revealed no cause for this, so an analysis of the urine was made. Sugar was found present in large quantities. The child was immediately starved until sugar free and then placed on a suitable diet. The tonsils were removed as the probable source of infection. For the year and a half intervening between the onset of the disease and the admission to hospital this winter the patient never had sugar in his urine and his blood sugar remained normal. The boy improved greatly, symptoms disappearing under the treatment, but he gained in neither weight nor height.

(2) W. N.—Aet. 8. Glycosuria was discovered at two years of age. He was placed on a restricted diet at once and for the past two years has been on a rigid Allen dietary. His tolerance has declined as a result of frequent infections. When admitted to hospital this winter he weighed only $30\frac{3}{4}$ lbs. (normal $54\frac{1}{2}$) and was 42 inches in height (normal 48 inches) and could not take more than 20 gms. of carbohydrate without glycosuria.

We do not wish to minimize the great bene-

*Read before the section on Diseases of Children, Ontario Medical Association, Windsor, June, 1923.

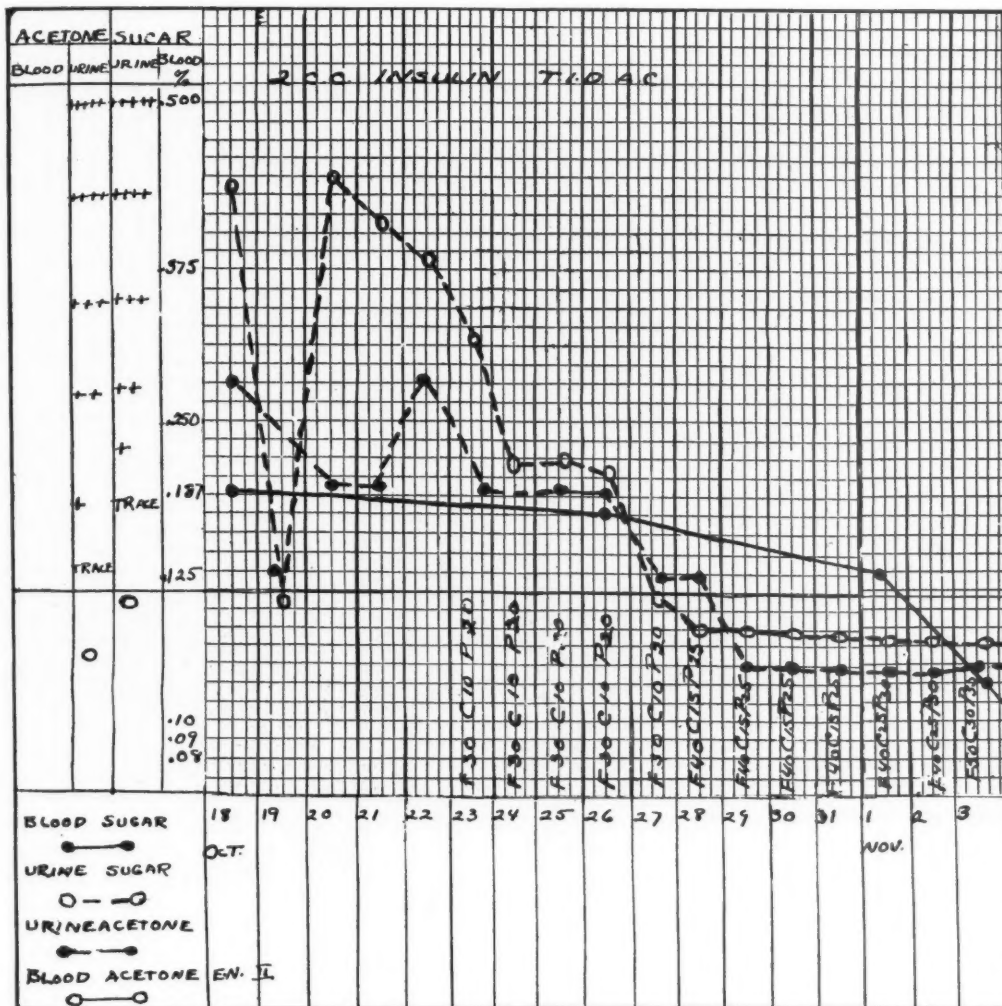


CHART NO. I.—PART 2.

E. N. Age 11. The chart is self-explanatory. The precedence of laboratory improvement rather than clinical is not uncommon. Recovery was complete and the child had continued to improve under the dietetic treatment alone, until this last two months when she has received one dose of insulin a day. She is now a little above normal weight and her general health is excellent.

Those classified as mild are really early chronic cases, acute in the short duration of the symptoms only. In addition to those classified as acute, five of those admitted with coma were acute cases, *i.e.*, in 80 per cent. of our cases the disease was acute, both in severity and duration of symptoms, and 31 per cent. of such cases had become comatose within a few weeks of onset.

As proper treatment of a disease does not usually begin before its diagnosis, a few remarks on the diagnosis of diabetes in children

would not be amiss here. We should like to urge the importance of urinalysis in children. In four of our acute cases, the disease was not diagnosed until the patient was in coma twenty-four hours or longer, and no urinalysis had been done. Three of these cases died, coma having been present four days in two cases and off and on for two weeks in the third. The sudden onset of polyuria or enuresis in a child, particularly following an acute infection, should suggest an examination of the urine for sugar. Loss of weight with a normal or increased appe-

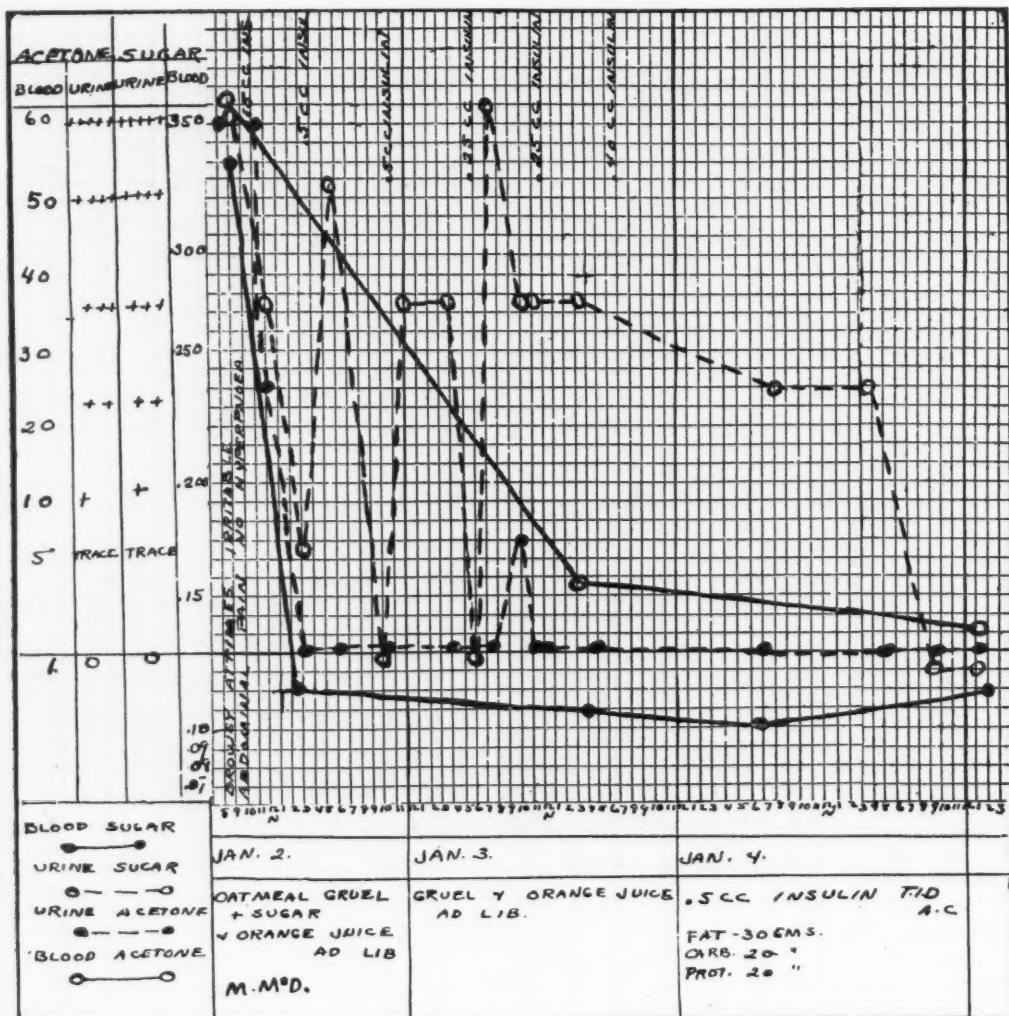


CHART No. II.

M. McD. Age 4. This chart shows the usual prompt response both chemically and clinically to insulin in the treatment of coma. The pictures above, the first taken a few days after recovery from coma, and the second six weeks later, show the improvement in the child's appearance. She changed from a cranky, irritable semi-invalid to a happy, healthy child, and has remained so since discharge, three months ago.

tite suggests diabetes. Incipient coma is indicated by the presence of epigastric pain with some vomiting and periods of drowsiness in a diabetic child. The depth of the stupor does not indicate the severity of the acidosis, and the presence of any drowsiness in a diabetic child demands urgent treatment to ward off coma. If coma has been present more than forty-eight hours before treatment is commenced, the insulin may reduce the high sugar and acetone bodies in the blood and urine and yet death may occur as the result of the toxic action the

ketone bodies have exercised on the body before institution of treatment. Insulin properly given will cure coma if treated within twenty-four hours, often when started later, but delay means an unnecessary increase in fatalities.

Physiologically the ingestion of food is followed by an increase in blood sugar, which stimulates the island tissue of the pancreas. In diabetes this upward curve of the blood sugar is greatly exaggerated in its height and duration, thus prolonging the irritation and consequent degeneration of the pancreas. The injec-

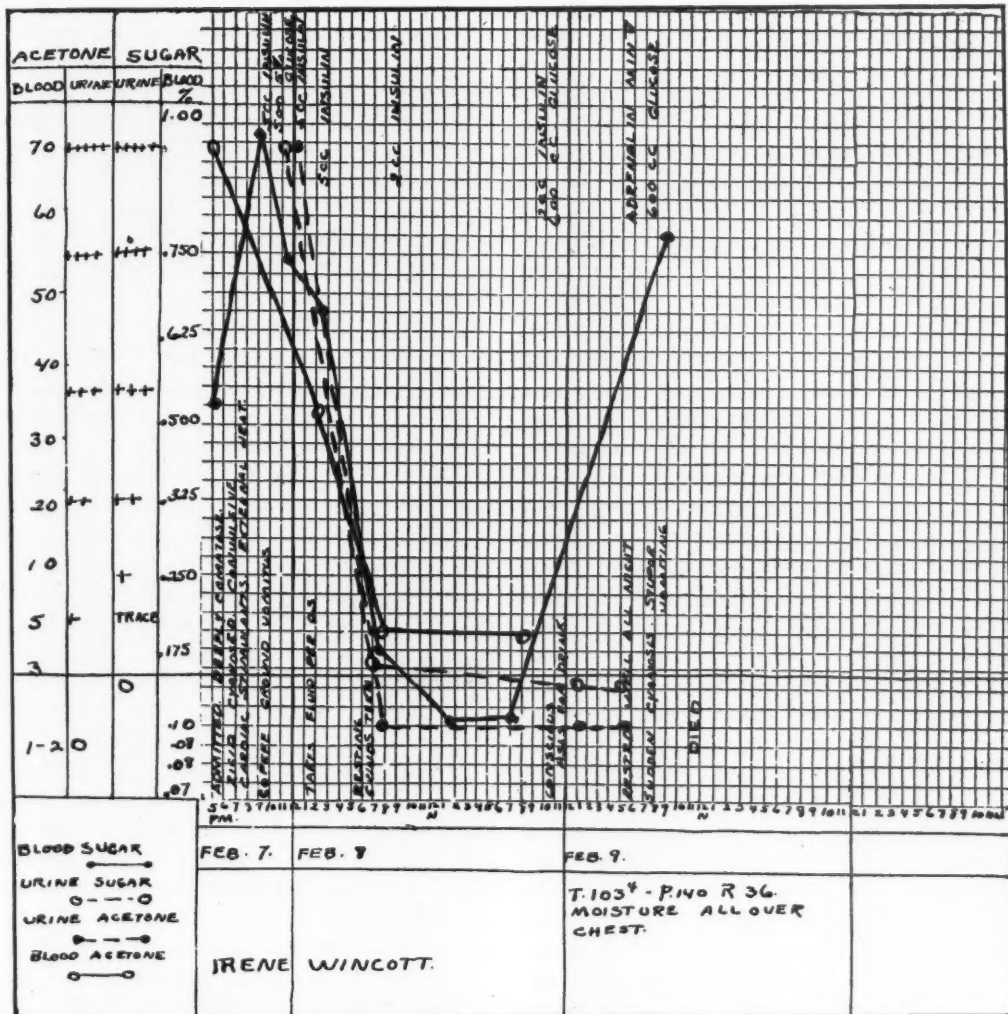


CHART No. III.

I. W. Age 8. This chart shows the result of too great a delay in commencing insulin treatment in coma. The child was admitted moribund, coma having been present for four days. It will be seen that sugar and acetone bodies in the blood and urine were rapidly reduced by the insulin. Death occurred associated with a train of symptoms characteristic of poisoning of the sympathetic nervous system.

tion of insulin causes the blood sugar to fall, the depth of the fall depending on the height of the blood sugar before and the size of the dose given. In administering insulin to diabetics one aims to counteract the normal rise in the blood sugar by a sufficient dose of the extract and in this way remove all work from the pancreas.

Insulin is a highly potent physiological product and fatalities may readily result from its improper use. If too large a dose be given, the

concentration of the sugar in the blood falls to a level incompatible with life. Mild reactions are encountered when the blood sugar falls between .07 and .08 per cent. At this stage, the patient complains of uneasiness and increased perspiration and often is a little dizzy. Prompt relief of symptoms is obtained at this stage by the ingestion of orange juice or glucose by the mouth. In more severe reactions drowsiness or irritability follow these symptoms, and if untreated the patient becomes comatose, and

possibly has convulsions. Treatment is urgent if life is to be saved. Adrenalin hypodermically proves a most effective and rapid means of raising the blood sugar except in extremely thin people with low glycogen storage. Following the injection of adrenalin the patient usually recovers sufficient consciousness to take carbohydrates by mouth, failing such recovery glucose must be given intravenously at once. Remarkable recovery from deep coma takes place within a few minutes.

On admission non-comatose cases were placed on starvation diet, *i.e.*, broth and thrice boiled spinach, and water, until the hyperglycemia was gone. No insulin was given at this stage unless the preliminary blood examination showed a very high sugar content which would have entailed prolonged starvation to bring it to normal, or unless the blood acetone was so high that the patient was regarded as in a state of impending coma. In these cases sufficient insulin was given to prevent the development of coma and shorten the starving period. When the blood sugar became normal the patient was placed on a diet, which was gradually increased in amount until hyperglycemia or glycosuria again appeared. The initial diet usually consisted of fat 20 gms., carbohydrate and protein each 10 gms. Daily increments of 10 gms. of fat and five each of carbohydrate and protein were made until the calorie intake approached the patient's basal requirements, and was then increased more slowly. The carbohydrate and protein were kept about equal and the fat increased as high as possible without producing acidosis. This amount of fat usually bears the ratio of 1.5 of the total carbohydrate or antiketogenic intake. The preliminary treatment by diet alone was regarded as essential in determining the severity of the case and its tolerance to carbohydrate, so that subsequent to the course of insulin its effect could be more easily ascertained.

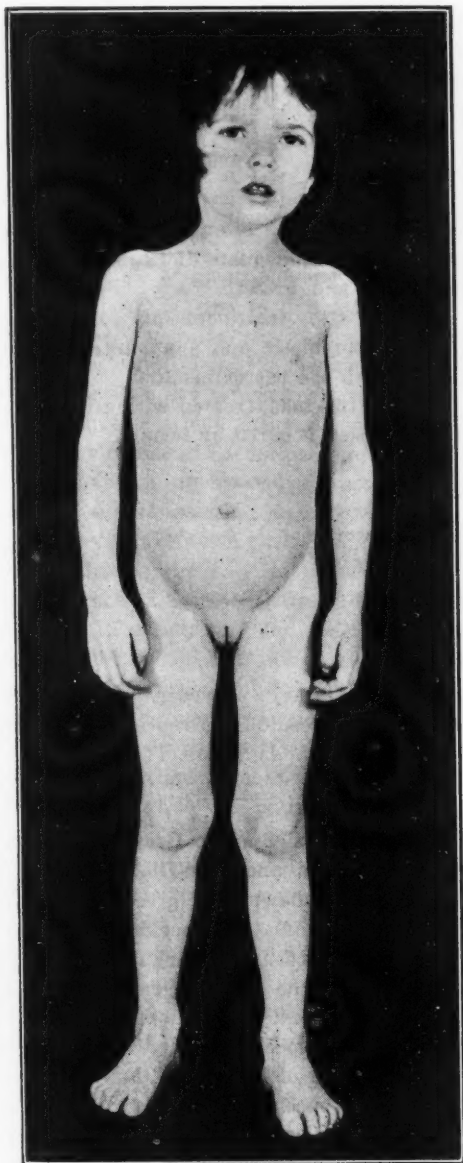
Insulin treatment was started without changing the diet as soon as hyperglycemia was produced. The initial dose was usually five units a day, and it was increased or not, depending on the effect on the blood sugar which must be watched closely. It was given subcutaneously, usually in two doses daily, ten minutes before the morning and evening meal, which were

made the heaviest meals and spaced as far apart as possible on this account. In two cases in the series, it was given before each meal, as sufficiently large doses could not be given only twice a day to prevent a rise in blood sugar without producing a reaction. As soon as the blood sugar was normal again, the diet was increased. The same type of diet, relatively high fat and low protein and carbohydrate, was used and 2,000-2,300 calories given. The dose of insulin was increased from time to time, according to the indication afforded by blood sugar determinations. The dose, when the child was on high diets varied between 20 and 60 units a day. Treatment with insulin was usually carried on for six to eight weeks, care being taken to keep the blood sugar normal throughout. It was hoped by this means that the pancreas would be allowed complete rest and the islands given a chance to regenerate, while the child's general condition was improving. Every case gained from five to fifteen pounds, and the child changed from a thin, irritable patient to a picture of perfect health. In four cases discharged long enough to report on, the added weight has been maintained.

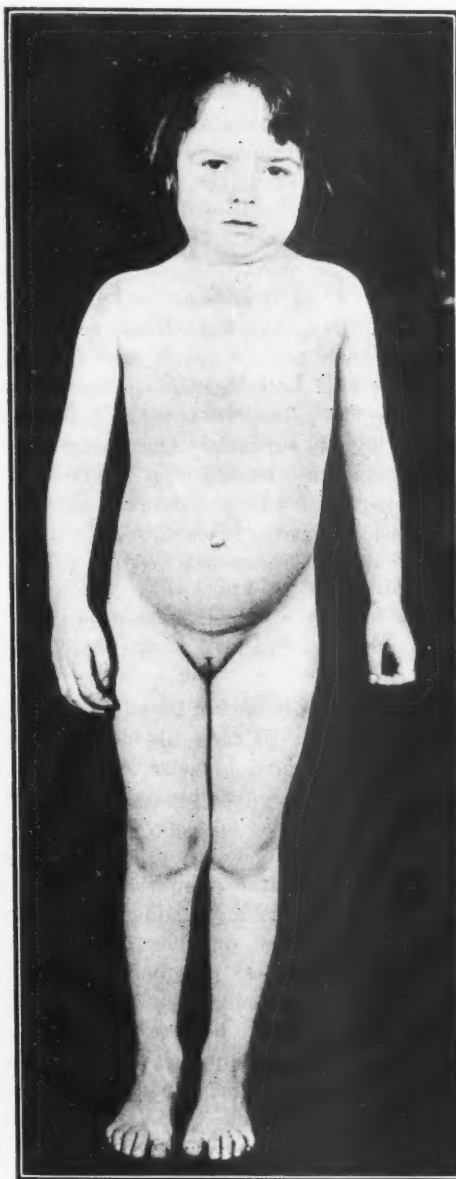
After the course of insulin the child was again given a low diet which was raised slowly until his tolerance was determined. Patients were discharged on a diet on which they had maintained a normal blood sugar while in the hospital. In four cases the tolerance was definitely increased by the course of insulin, in the majority it remained the same, but the child has been able to maintain better health on the diet since. When the calorie intake on diet alone would be too low, insulin is being given once or twice a week or oftener.

Insulin is a specific in the treatment of coma, and it is the only remedy for this condition that has ever produced recovery in children, except in rare instances. Early diagnosis of coma is essential for its cure even with insulin, as pointed out above, and as will be seen in the charts.

Insulin may be given either intravenously or subcutaneously in the treatment of coma, depending on the urgency of the symptoms. We have preferred the subcutaneous method because of its greater freedom from reactions. We have found that thirty to forty units is a



BEFORE INSULIN



AFTER INSULIN

safe initial dose. While the patient is in coma and requiring larger doses of insulin, frequent urine and blood sugar examinations are required. Reactions are indicated by hypoglycaemia and by a sugar free alkaline urine. It is usually necessary to repeat the doses of insulin every four hours during the first twenty-four hours, but the amount needed usually diminishes. In some cases the action is slow.

Laboratory tests show evidence of improvement earlier than the clinical condition of the patient. The latter may occur within a few hours or may require days before it is manifest. The patient may even appear to get worse under treatment and yet make a complete recovery eventually. All our coma cases who received treatment within forty-eight hours of the onset of symptoms recovered. We feel

that, with earlier diagnosis and treatment, insulin would have saved them all.

Other essentials in the treatment of diabetic coma include the maintenance of a normal body temperature, the intake of large quantities of carbohydrate containing fluids, cleaning out of the bowels and usually the use of cardiac stimulants. Even in a small child, one or two litres of fluid must be given. This is usually impossible to give by mouth because of the stupor and vomiting, so interstitial and intravenous glucose is used. As consciousness returns the patient is urged to take orange juice or glucose by the mouth. Later, gruels containing milk and sugar are given, as they are most easily tolerated by the stomach. After complete recovery from the coma, the diet is given as in the non-comatose cases. Sodium bicarbonate irrigations are given repeatedly to clear the bowel of any toxic material.

These charts will possibly show in the best way the remarkable effects of insulin in diabetic coma, and the pictures, the difference insulin has made possible in the physical development of the children.

Summary

1.—Insulin renders it possible to arrest the progress of diabetes in children while allowing them to take an adequate diet to maintain normal health and growth.

2.—Successful treatment of complications such as tuberculosis and acute infections, are possible with the use of insulin.

3.—Diabetic coma, treated within forty-eight hours of onset, is cured by insulin.

REFERENCES

- (1) VON NOORDEN, *Die Zuckerkrankheit*, 1912. (2) ALLEN, *Monographs of the Rockefeller Inst. for Medical Research No. 11*, 1919.

Chemical Solvents used in Dissolving Foreign Substances in the Urinary Bladder.—Foreign bodies, such as gum, beeswax, paraffin and urethral pencils, are soluble in the urinary bladder, obviating the necessity of painful instrumentation or of operative procedures. The degree of safety with which these chemicals can be used in the urinary bladder is apparent. For paraffin, the best dissolvents are xylene, pure benzine, high test gasoline and benzin; for gum, high test gasoline, benzin, xylene and gasoline; for beeswax, benzine, xylene, high test gasoline and ordinary gasoline; for urethral pencils, pure benzine, a commercial form of "automobile" benzine (benzol) and benzin. The presence of water or of urine neither aids nor interferes with the action of the solvent. With the establishment of definite time limits for dissolving a known quantity of paraffin, gum, beeswax or urethral pencils in vitro and in vivo, Harold L. Morris and Clarence I. Owen, Detroit, found that cases of this kind are amenable to office treatment and observations, thereby obviating the necessity of hospitalization. The observations of other workers have been that repeated instillations of the solvent were necessary, the solvent being retained for hours at a time. This, the authors

feel, is unnecessary; however, no permanent damage would result from repeated injections. —*Jour. Am. Med. Ass.*, Nov. 17, 1923.

The Relation of Specific Gravity to Glycosuria in Diabetic and Non-Diabetic Cases.—Experience has shown that glycosuria can be present in urine of a low specific gravity. In 1,000 cases of glycosuria, Henry J. John, Cleveland, compared the specific gravity with the urine sugar content, the cases being classified according to the specific gravity. The percentage of incidence of glycosuria bears a direct relation to the specific gravity. But the interesting and significant point shown is the high incidence of glycosuria with a low specific gravity. Of 147 cases of diabetes, 72.5 per cent. would have been missed if diagnosis had been based on the low specific gravity alone. In order to find what is the average percentage of sugar at different specific gravity levels, John analyzed the records of the urine examination in 268 diabetic cases. By a negative diagnosis of diabetes based on a low specific gravity of the urine, at least half of the cases would have been missed.—*Jour. Am. Med. Ass.*, Dec. 8, 1923.

HAEMATURIA—ITS SIGNIFICANCE*

DAVID W. MacKENZIE, M.D.

*A Brief Clinical Study of 821 Consecutive Cases from
the Department of Urology, Royal Victoria Hospital*

THE presence of macroscopical blood in the urine can be due to a great variety of causes, and generally signifies some serious pathological condition of the urinary tract. It is not a clinical entity which requires treatment but a symptom which demands investigation.

The importance of haematuria and the necessity of determining its cause must be recognized by every physician and should be carefully impressed on each patient suffering from urinary haemorrhage. Notwithstanding all that has been said and written on this subject, there is still a tendency for the medical profession to regard this condition lightly, to treat it without diagnosis, and to consider a cessation of bleeding as an indication of cure. This is largely due to the fact that haematuria is usually intermittent in character. During the free interval, while the patient is apparently in perfect health, it is not surprising that both patient and physician should minimize the importance of this danger signal. It is at this time, while there is yet a probability of cure, that the best opportunity for investigation and diagnosis is afforded.

Haematuria nearly always means the presence of organic disease of the urinary tract. This has already been emphasized by Kretschmer with 238 cases and by many others. It is again to impress this fact on all of us more directly that I have taken up the study of 3,800 consecutive admissions to our department, at the Royal Victoria Hospital. Of these cases 821 came in complaining of haematuria; this number does not include cases where microscopical blood was found at examination, but only those in which the patient complained at some time or other of having passed blood in the urine. The list given below gives in

tabulated form the number of cases, suffering from the definite condition specified, which showed the existence of blood in the urine; but it must be observed that all patients suffering from such conditions do not give evidence of blood. The number evidencing blood in each condition herein set down is relatively small. This is more especially true of injuries of the kidney, renal tuberculosis, infections of the renal pelvis, ureteral stones, bladder stones, growths, etc. The following is a classification of the 821 haematurias in 3,800 admissions to the Department of Urology:

Kidney:	
1.—Trauma	11
2.—Acute Nephritis	7
3.—Chronic Nephritis	16
4.—Tuberculosis	88
5.—Pyelitis	
Pyelonephritis	
Pyonephrosis	132
6.—Foreign Body (calculus)	64
7.—New Growth (malignant)	12
8.—Congenital	11
Horseshoe Kidney.....	3
Double pelvis (infected)..	8
9.—Cystic	3
Ureter:	
1.—Foreign Body (calculus)	87
2.—Inflammation (stricture)	1
3.—Congenital	
Double ureter with calculus and infection	2
Bladder:	
1.—Trauma	6
2.—Acute and chronic inflammation	38
3.—Diverticula	4
4.—Foreign Body (calculus)	39
5.—New Growth	
Malignant and Benign	87
Prostate:	
1.—Acute Inflammation	10
2.—Chronic Inflammation with	
Tuberculosis	39
3.—Foreign Body	2
4.—Prostatism	54
5.—New Growth, Malignant	14
Urethra:	
1.—Trauma	13
2.—Acute Inflammation	11
3.—Chronic Inflammation	15
4.—Stricture of urethra	10
5.—Foreign Body	1
6.—New Growth, Benign (caruncles) ...	10
Unclassified as to Etiology	34

*Read at the joint meeting of the Maine and New Brunswick Medical Societies, Houlton, Maine, June 6th, 1923.

An analysis of these 821 cases shows that 192 were due to calculi, 113 to tumors, 88 to renal tuberculosis, and 143 to surgical infections of the ureters and kidneys, or, excluding the urethra, 536 cases out of 761, that is over seventy per cent. were caused by calculi, tuberculosis, cancer or surgical lesions of the kidney; while the other thirty per cent. most certainly required investigation. The great importance of subjecting these patients to a careful and thorough examination is at once apparent.

With the present day methods of diagnosis, the origin and cause of urinary haemorrhage can be ascertained in a very large percentage of cases. Indeed the regular routine urological examination will shed much light on all such cases. The findings given in the preceding table, cannot fail to impress us with the fact that red blood cells have no place in normal urine, and that they are caused by some pathological condition which it is our duty to discover.

TWO CASES OF INFESTATION OF THE INTESTINE WITH LARVAE OF SPECIES OF FANNIA

ALBERT G. NICHOLLS

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CASES of infestation of the bowel with the larvae of flies seem to be rather uncommon in Canada. Or, if otherwise, they are not reported. I have been fortunate enough to meet with two cases recently, and have thought it would be of some use to bring the subject into more general notice. Personally, I have never met with the condition before, and it is rather curious that I should receive from widely-separated parts of Nova Scotia, and on the same day, two samples of such larvae that had been obtained from human faeces.

For the notes of the first patient I am indebted to Dr. B. W. Skinner, of Hubbard's, N.S. Mrs. F. C., aged about 34 years. Her complaints were: poor appetite; malaise; that she was easily tired; constipation; bearing-down pains in the lower abdomen, rendering it difficult at times to stand upright. There were no abdominal distension, diarrhoea, or actual colic. She passed the peculiar organisms about once a month, and after the evacuation felt somewhat improved.

For the history of the second case I have to thank Dr. G. K. Smith of Grand Pré, N.S. A female, aged 80 years. She was complaining of headache; poor appetite; nausea; periodic cramps in the abdomen; looseness of the bowels. She stated that she had been passing

the organisms in question off and on for fifteen years.

In the case of the first-mentioned patient, the larvae were identified as those of *Fannia scalaris*, otherwise known as the "Latrine Fly." In the second instance, two forms were found, the larvae of *Fannia scalaris* and of *Fannia canalicularis*, or the "lesser House Fly."

Both flies mentioned belong to the dipterous family Anthomyiidae, and are of some importance in their relationship to man. They resemble one another closely, but may be differentiated by the following points. The abdomens in both are conical, but the basal abdominal segments in *F. canalicularis* are partially translucent, and the abdomen of *F. scalaris* is black overspread with bluish grey. Also, on each of the mid-tibiae of *F. scalaris* is a tubercle not found in other species.

According to the late Dr. C. Gordon Hewitt, Dominion Entomologist, for a short time in the early summer, usually in May and June, *F. canalicularis* is more prevalent than the ordinary house fly, *M. domestica*. Later, the latter form greatly predominates. *F. canaliculares* have a tendency to congregate about lamps and chandeliers, where they may be recognized by their peculiar jerky and hovering flight. The

larvae are hatched in decaying vegetable and animal matter, and also in excrement. They are quite different from the larvae of *M. Domestica*, being flattened dorso-ventrally, and having a double row of spiny processes along the borders, and also on the ventral aspect.

Heeger (1848) found the larvae of this fly living in the caterpillars of *Epischia canella*, and Carter and Blacklock (1913) found it, with those of two other species, in a case of external myiasis in a monkey.

The habits of the Latrine Fly are similar to those of *F. Canalicularis*, but it is more often found developing in human faeces, particularly in privies and rubbish heaps. The larvae are not unlike those of *F. Canalicularis*, but the lateral processes are more feathery in appearance. *F. Scalaris* is said to be a more common cause of intestinal myiasis than the other.

The symptoms referable to intestinal myiasis are often trivial, but there is usually abdominal distress or even pain, abdominal distension, and diarrhoea. Exceptionally, the stools are bloody.

A few stray cases of intestinal myiasis are found in the literature. As far back as 1839, Jenyns (*Trans. Entom. Soc., Lond., Vol. 2, p. 153*) found in the human faeces what seem to have been the larvae of *F. Scalaris*. Similar instances have been recorded by Laboulbène (*Comptes Rend. Soc. Biol., p. 8, 1856*); Judd (*Amer. Nat., Vol. 10, p. 374, 1876*); Stephens (*Thompson Yates and Johnstone Laboratories Report, Vol. 6, Part 1, pp. 119-121, 1905*); Cattle (*Brit. Med. Journ., Vol. 2, p. 1066, 1906*); Blankenmeyer (*Journ. Amer. Med. Ass., Vol. 48, p. 1505, 1907*); Hewitt (*Repts. Local Govnt. Board on Pub. Health and Med. Subj., N.S., No. 60*); Austen (*Ibid.*). Rather oddly, considering the great abundance of the common house fly, *M. Domestica*, intestinal infestation with its larvae is distinctly rare. Austen states that only two cases have come under his notice.

Larvae of various flies have also been found in the urethra and the vagina. Tulpus (*Observationes Medicae, Vol. 2, pp. 173-174, 1672*) mentions the discharge of twenty-one

small larvae, probably *F. Canicularis*, from the urethra. Veau de Launy (*Obser. de phys. de Rozier, Vol. 50, p. 158, 1792*) notes the occurrence of a larva, passed in the urine, which resemble that of *F. Canalicularis*. Chevril (*Arch. de Parasitol., Vol. 12, p. 369, 1909*) summarizes previous cases in the literature and gives an additional case of the occurrence of the larvae of *F. Canalicularis* in the urine of a woman, aged 55 years, who had albuminuria and micturated with difficulty. Austin refers to a case of Dr. J. F. Palmer's, in which a single larva of *F. Scalaris* was passed by a male patient by the urethra.

Even vaginal myiasis has been recorded (*Pieter, Re. de Med. et d'Hyg. Trop., Vol. 9, p. 176, 1912*).

The larvae of *Calliphora erythrocephala*, *Muscina stabulans*, *Anthomyia radicum*, *Piophilae casei*, have occasionally been found infesting the human intestine.

Larvae of various flies have also been found in the nasal cavity, the aural cavity, the conjunctival sac, the umbilicus, and even the anterior chamber of the eye. Infection is rendered more easy by uncleanly habits or carelessness. The eggs may be swallowed with decaying fruit or vegetables, which are eaten raw, and hatch out in the stomach, whence they are passed into the intestine in the larval form; or again, they may develop in the bowel itself. The use of open privies constitutes a danger, especially in the case of constipated females. Here, the eggs may be deposited about the anus, and the larvae, on hatching, may make their way into the rectum, less often, into the vagina and the urethra. Various secretions, which may be found about the genitalia, will tend to attract the flies, naturally. Also, inasmuch as the flies are common in bedrooms in the hot weather, infection is readily made possible. Of course, these curious cases are instances of pseudo-parasitism, and not of true parasitism, since the human host is an accidental and not a necessary factor in the life history of the fly.

REPORT ON AN OUTBREAK OF ALASTRIM IN ANTIGUA, B.W.I.

H. W. HILL, M.D., D.P.H., L.M.C.C.

Director of Institute of Public Health, London, Canada

THE following interesting communication from Drs. E. Wm. R. Branch, and W. M. MacDonald, respectively Acting Chief Medical Officer, and Medical Officer of Health, for the island of Antigua, B.W.I., relates the story of an outbreak in the island, in 1923, of so-called "alastrim." Excellently handled by these gentlemen in conjunction with Lieut-Col. T. R. St. Johnston, the Colonial Secretary, who is himself a medical man, the outbreak quickly subsided under the usual precautions against smallpox, including extremely thorough vaccination reaching practically 100% of the population. The evidence obtained by the very careful work done goes far to prove still further the identity of "alastrim" and mild smallpox.

"Alastrim" is one of many names given in the tropics to the mild smallpox which we have "enjoyed" since the year 1900, about which time it is generally supposed that it was introduced into the United States from Cuba, under the name of the "Cuban Itch", (Schamberg maintains that it was present in Florida as early as 1896). Such at least is the general conclusion reached concerning "alastrim" by most field men in public health work, and additionally confirmed by the following article, (*quoted in part only*).

Although this mild smallpox when examined superficially, seems to depart markedly from the clinical picture of the old-time severe smallpox, careful study of cases shows that this departure is quantitative rather than qualitative; that the mild forms are aberrant rather in degree than in kind—showing for instance, longer incubation periods (severe smallpox, twelve days, mild smallpox (alastrim) twelve to twenty-one days; longer prodromal periods, with lighter prodromal symptoms (severe, three to four days; mild, three to six or seven days); less numerous skin lesions, more frequently irregular and abortive, generally without severe pustulation; finally and, probably on account of the latter fact, little or no secondary fever, few complications or sequelae, rapid scabbing, and insignificant pitting.

The suggestion that mild smallpox is a disease which is related to severe smallpox as paratyphoid

fever is related to typhoid fever, or German measles to measles, or chickenpox to smallpox, overlooks a crucial difference in the kind of relationship between these well established pairs of distinct diseases, and the kind of relationship existing between mild smallpox and severe smallpox, which is this; smallpox and chickenpox each produce immunity to itself but *not* to the other; measles and German measles *ditto*; typhoid and paratyphoid *ditto*, (even the varieties of paratyphoid fail to protect against each other); but both severe smallpox and mild smallpox protect against vaccinia; and vaccinia protects against both severe smallpox and mild smallpox, while exactly the same statements may be made of *alastrim*. In other words, *alastrim* and mild smallpox are interchangeable terms. It is true that I have been unable to find records of severe smallpox protecting against the so-called *alastrim* or *vice versa*; perhaps because "alastrim" was the only form of smallpox prevalent at the times and places when and where the observations were chiefly made.

That *severe smallpox* protects against *mild smallpox* and *vice versa* is well established. If, then, "alastrim" be merely mild smallpox, we may transfer this proof of identity between severe and mild smallpox to prove the identity of mild smallpox and "alastrim." In fact, the whole confusion seems to rest in the mere logical fallacy of giving different names to the same things, and then assuming differences in the things because of the differences in the names. The term "alastrim" should be definitely dropped and mild smallpox definitely adopted in its place.

The writer has held and offered for years the hypothesis that severe smallpox and mild smallpox are due to the *same* smallpox germ, the severe being in company with a virulent streptococcus, which latter is responsible for the secondary fever, pustulation, pitting, meningitides, arthritides, etc.; the mild being not so associated with a streptococcus, and therefore escaping these severe streptococcal features. In brief, mild smallpox, if this hypothesis be true, is pure smallpox, *i.e.*, smallpox due to the smallpox germ alone; and

severe smallpox is the same pure smallpox, *plus a virulent streptococcus*. On the other hand, Chapin, of Providence, considers differences in virulence of the smallpox germ itself as the cause of the clinical differences observed. Which ever of these hypotheses be correct as explaining the connection between severe and mild smallpox, it cannot well be doubted that the same explanation applies to the connection between severe smallpox and so-called "alastrim."

SUMMARY

Clinically, alastrim, amaas, Kaffirpox, Cuban Itch, Sanaga pox, glass pox*, milk pox, and mild smallpox are indistinguishable; they are all prevented by vaccination and hence (since vaccinia is smallpox, modified by the cow) show the essential biological as well as practical test for etiological identity with smallpox. Severe smallpox has been gradually reappearing during the last three or four years, and therefore opportunities to determine definitely the degrees of protection afforded by these minor clinical varieties against severe smallpox, and *vice versa*, will probably become numerous. Observations on this point should be made by all who may encounter simultaneous outbreaks of severe smallpox and the milder clinical varieties. Meantime, every item of proof so far accumulated indicates that the "alastrim" of the tropics is merely the mild smallpox of the temperate zone under another name; a name it would be well to abandon, lest the mere existence of a separate name foster a mistaken belief in a separate etiological entity to correspond with it.

*The term "glass pox" has also been applied to chickenpox.

REPORT OF AN OUTBREAK OF ALASTRIM IN ANTIGUA

E. WM. R. BRANCH, M.B., C.M. Edin.

Acting Chief Medical Officer

AND

W. M. McDONALD, M.R.C.B., L.R.C.P. Eng,

Medical Officer of Health

History of the Invasion.—On January 22nd, 1923, a negro woman named Paulina Christian came to the Police Court in St. John, Antigua, with pustules all over her face. Her appearance aroused the suspicions of Captain Lindop, the Sub-Inspector of Police, and he at once reported his suspicions to Dr. Branch, the Acting Chief Medical Officer, who after seeing the woman called the Medical Officer of Health, Dr. McDonald, in con-

sultation on the case; they confirmed Inspector Lindop's suspicions and decided that it was a case of alastrim. Lt.-Col. St. Johnston, the Colonial Secretary who is also a medical man, saw the case and agreed with the diagnosis.

This, the first case observed, was well developed with confluent pustules, and was traced by the aid of the police to another woman named Jane Richards, with whom Paulina Christian had been sleeping and who had recovered from the disease but still had well marked pigmented spots. Further inquiry elicited the fact that Jane Richards spent her days in the yard of a Mrs. Bartley, and Mrs. Bartley was found with healed alastrim spots in her face and extremities. This Mrs. Bartley is the wife of a police constable, who had arrived in Antigua from Dominica with her husband in a sailing vessel on December 2nd, 1922, and showed on landing a certificate of successful vaccination, but on inspection no marks of recent vaccination were seen. Her husband, fortunately, had been successfully vaccinated recently, otherwise he would probably have contracted the disease and infected the police barracks.

Course of the Invasion.—On the same day, January 22nd, a man was found in the same district suffering from alastrim, making the fourth case in the same area. Meanwhile a brother of Constable Bartley, living in the city, had acquired the disease from his sister-in-law, and had fled to a village about 9 miles from St. John called Liberta, thus establishing a second focus of infection, and on January 26th nine cases of the disease were discovered in six houses in Liberta.

In these two infected areas 28 cases occurred, making with three others that could not be traced to infection from either town or Liberta, a total of 31, on March 19th.

On March 19th, there had occurred no fresh case for 20 days, and we were thinking of issuing clean bills of health for the island when to our disappointment Jacob Isaacs from All Saints village was brought in with an eruption of three days' standing. In this case also the incubation period was 17 days.

The diagnosis in the early stages was rather complicated by the concurrent existence in the island of an epidemic of chicken pox, but the difference as the cases progressed was too well marked to lead to any serious mistake. None of the white or better class colored people in the island were attacked.

After our experience here we view with considerable apprehension the suggestion made at a meeting of the Quarantine Convention in Barbados in April, 1923, that the period of quarantine or surveillance for alastrim should be 14 days. Prior to this meeting the period as laid down by the convention was 12 days. We consider it advisable that the period should be increased to 21 days.

Fortunately, we had in our Governor, the Hon. Sir Eustace Fiennes, Bart., a man who was prepared to take firm steps against an invasion by such an unwelcome and economically serious disease, and he at once put in force the most stringent and energetic measures to prevent the spread of the contagion, bringing to bear all the legal administrative and economic forces he possessed, and assuming others that were necessary to his purpose. Legislative steps were at once taken to legalize certain measures adopted in dealing with the crisis. By an Order in Council, alastrim was added to the list of notifiable infectious diseases, and regulations were made empowering the Governor to close schools and places of public amusement, to declare "prohibited areas," and to enforce re-vaccination. Infected areas were quarantined for a period of 21 days dating from every fresh case found, and a daily house-to-house inspection by sanitary officers was carried out, with the object of noting and at once reporting any suspicious cases. By the 6th day of April we were able to report "all clear" and to issue clean bills of health.

SUCTION APPARATUS FOR REMOVING MUCUS FROM THE NEW-BORN

GEORGE J. STREAN, M.D.

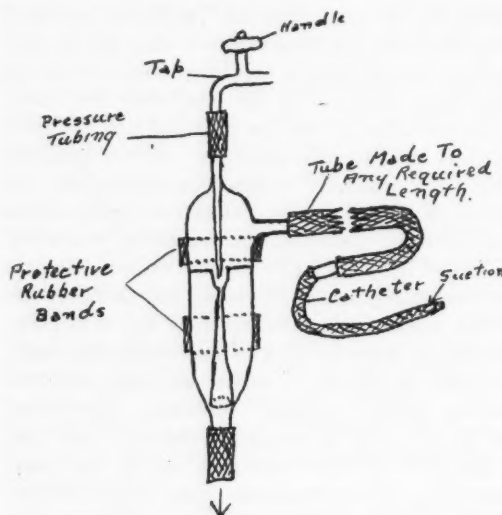
Resident, Montreal Maternity Hospital

WE have been using at the Montreal Maternity Hospital a suction-pump for removing mucus from the new-born. It is simple, efficient, easily operated and costs very little.

It is a water-suction attachable to all ordinary sized taps and therefore can be used in the home in general practice as well as in the hospital. The negative pressure is controlled by the tap-handle and can be easily regulated to give the required amount of suction. It sucks up thick mucus without plugging and is washed by sucking through water. By adjusting the rubber tube leading from the suction, the apparatus can be made to satisfy any length.

In this hospital we have frequently used the apparatus successfully. We have it ready before delivery in all difficult labours, and in all cases where asphyxia may be expected. With its assistance it is only a matter of a few seconds to clear away the mucus after birth by manipulation of the catheter in the throat. We have experienced no harmful effects from it. It does not stick or pull on the tissues, as it is easily movable and the negative pressure is easily adjusted. By adding a wash-bottle and changing the catheter for another

more suitable attachment, the apparatus can be used in operations on the tonsil or other parts of the throat where suction is indicated.



The cost is insignificant. The glass trap in the suction costs 80c. Tubing is added to any required length and a catheter secured on the end. The whole apparatus can be prepared for less than \$3.00.

Deficiency in Diet and Public Health.—In general, Newsholme says, all is likely to be well if the modern diet is supplemented by a daily supply of foods rich in vitamins, in mineral matter, and in protein of good food value. The best foods for the purpose are milk and milk products, eggs, green vegetables and fruit. With a sufficiency of these there is no reason why the rest of the diet should not consist of the cheaper foods which bulk so largely at present. The great need at the moment is that by every possible means people should be edu-

cated to a knowledge of the defects in the national diet, and of the simple precautions which can counteract its evil effects. A good deal is already being done, through the education of school children in elementary hygiene, through cookery classes, through the work of health visitors and of infant welfare centres, and of voluntary agencies. There is, however, scope for a vast expansion of activity in these directions, with results which will be far greater than the labour involved.—*Jour. State Medicine*, London, Sept., 1923.

THE OPERATION OF CARTILAGE-CRANIOPLASTY

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OPINIONS are divergent as to the most suitable method of closing gaps in the skull, and many methods have been tried with varying successes. The osteoplastic method of König and Müller, which was introduced to the profession in 1890, where the opening in the skull was closed by an auto-transplant of bone, gives successes in some cases only, as the fate of any bone graft is uncertain. A bone graft may live, but just as often it becomes invaded by granulation tissue and finally becomes fibrous tissue; sometimes it becomes infected and has to be removed. Decalcified bone and boiled bone have not been any more successful. Plates made of gold, silver, aluminum and alloys have been tried and have often failed. Celluloid plates have been strongly recommended by Fraenkel, Pringle and others. All these methods have all the objections to foreign body surgery elsewhere, that is, they constitute a latent focus of irritation and a possible focus of infection.

In 1915 Moristin introduced the operation of cartilage-cranioplasty, and reported his method with the history of four cases in *The Bulletins de la Société de Chirurgie*. Since then, this operation, though sometimes slightly modified, has been favourably reported on by Chutro¹ and Primrose,² and it is this operation I beg to lay before you as preferable to all others.

In cartilage we have a substance easily obtainable, easily cut, easily shaped and with marked powers of resisting infection. The operation of cartilage-cranioplasty has both simplicity and certainty to recommend it. The results obtained follow immediately upon operation. The cartilage will not be absorbed, but will remain a firm protection to the brain. One of my cases was accidentally killed seventeen months after operation. The autopsy showed the cartilage firmly soldered to the cranial bone, but still cartilage, and no evidence of absorption. It would appear that the cartilage

takes its blood supply from the meningeal arteries.

The injured head with an opening to the cranium, whether it be the result of gunshot wound, or an injury received in one of our industrial centres, will present the same problem; and those who are fortunate enough to recover from their injury, will present the same train of symptoms, which are either attributable to the cranial defect, or to the destruction or loss of brain substance. It is now accepted as a fact that the trephined patient suffers from very definite symptoms due to the defect in his cranium, such as headache, dizziness, mental depression, intolerance to external vibrations, *e.g.* thunder or rolling trains, a feeling of insecurity, vertigo on stooping, and a feeling of emptiness on the trephined side. This chain of symptoms has been designated by Chutro, as the "trepine syndrome," and is dependent on the gap in the patient's cranium. In the second class of cases, in addition to the above symptoms, we may find deafness, blindness, monoplegia, hemiplegia, aphasia or loss of memory. These symptoms are due to destruction of brain substance, and may be present in various combinations, depending on the location of the wound and the severity of the injury, and indicate serious damage to the brain. Disability may improve through re-education, but cannot possibly be relieved by any surgical operation. The functional disturbances must be taken into account, as well as the liability to accident on account of unprotected brain tissue.

Careful history taking may save the surgeon the humility of having to admit to his patient later that he has promised too much. After the history is carefully noted, the patient should be subjected to a thorough neurological examination, and finally the cranium should be skiagraphed to ascertain if there are any spicules of bones or other foreign bodies in

the neighbourhood of the wound, or within the cranium.

Closure is indicated:—1. Where any of the symptoms belonging to the trephine syndrome can be relieved by operation. 2. Where protection to the brain is required. 3. Where one wishes to remove a disfiguring cicatrix or to correct a deformity.

Closure is contra-indicated:—1. Where a foreign body is present. 2. Where there is infection. 3. Where there is an increase in the intracranial pressure. 4. Where there is a cerebral hernia which cannot be reduced by lumbar puncture.

The technique of the operation of cartilage-crianioplasty is as follows:—Local anaesthesia is recommended by some in these cases, but oil ether colonic anaesthesia was used in all our cases with satisfactory results.

Preparation.—The day before operation, the head is completely shaved and shampooed with ethereal soap, the ears syringed with warm boracic solution, and stopped with absorbent cotton. When the head is thoroughly dry it is painted with iodine and a sterile dressing is applied. The left costo-sternal area is also prepared for operation. At the time of operation, after anaesthesia is well established, the head and costo-sternal area are exposed and again painted with iodine and draped with sterile linen in the usual way.

Operation.—A horse-shoe shaped flap, comprising the whole thickness of the scalp, is turned down so as to expose the region of the defect. The incision is carried down to the pericranium and should lie well away from the margin of the gap. The flap is carefully dissected from the pericranium and from fibrous tissue which is adherent to the meninges and fills the cranial defect. A circular incision is then made down to the bone, encircling the gap and about one-sixteenth of an inch outside its margin. The frill of pericranium around the edge of the defect is now peeled from the bone with a periosteal elevator. If the meningeal membrane is adherent to the inner surface of the bone, it is separated with a blunt dissector until it is free in all directions. The brain should now pulsate normally within the cranial opening. As much of the scar tissue as possible should be clipped from the surface of the meninges. At this stage the condition of the

brain substance in this area should be noted, as we have observed abscesses in the cortex, in two cases, and the closure of a defect with an abscess under the cranium would ultimately have serious consequences. If the brain substance is found healthy the opening in the skull is now ready to receive the cartilage graft, and is covered meanwhile with a sterile towel. The cartilage is now cut from the costo-sternal area at the junction of the 7th, 8th and 9th costal cartilages. An incision about four inches long is made along the lower costal margin, and the muscles reflected from the area from which the cartilage is to be cut. The fingers of the left hand of the operator are now placed underneath the costal border and the whole area elevated. Then with a knife in the right hand, a slice of cartilage about one-sixteenth of an inch thick, and a little larger than the cranial defect is shaved from the surface of the exposed costal area. If possible the graft should be cut in one piece, but in cases where the cranial defect is large, it may be necessary to use two or more separate pieces. It will be seen that when the cartilage is cut it will curl slightly so as to be concave on one side and convex on the other. The cartilage is then placed in warm saline and the wound in the costal area closed. The field of operation on the head is again exposed and the graft placed in position in the following manner:—

The cartilage is trimmed to the size and shape required and inserted with the inside of the graft, which is the convex side, outward in the defect, in order that no increase in intracranial pressure may result. The edge should be just within the ledge of the inner table. It may be fastened there with a few interrupted sutures, if so desired, but usually it will bulge into the opening, and is held there by pressure from within the cranium, and soon becomes adherent to the surrounding tissue. The scalp flap is now sutured over it. A rubber drain should be inserted beneath the flap and left for twenty-four hours.

It is worth emphasizing that care must be taken to do this operation without increasing in the slightest degree the intracranial pressure, as it is a physiological fact that only slight increases in intracranial pressure may mean death.

The series analyzed as subject matter for this

paper constitute twenty cases. Distressing headache was a constant symptom in all but two cases. Of those who complained of headache, fifteen were cured through operation, two were unchanged, and one states his headache has been worse since operation. Eighteen complained of dizziness on stooping, and all were relieved of this symptom. Ten felt a feeling of insecurity and all were relieved by operation. Ten suffered from mental depression and six of these were benefited. Five complained of a sense of emptiness on the trephined side of the head, and this disappeared in all after closure. Two had aphasia and this persisted after operation in both. Two had loss of memory with no alteration of symptoms. One patient had diminished power in one arm and this remained unchanged after operation. Five out of the twenty cases gave a history of having had one or more convulsions. One was thought to be hysterical. In two, subdural abscesses were found, and the remaining two were epileptiform. The hysterical patient suffered from a sense of emptiness on the trephined side of his head, had headache and mental depression. His symptoms cleared up after operation, and he has had no convulsions since. Of the two cases in which the subdural abscesses were found, one has remained free from convulsions for three years, but has a marked degree of aphasia and loss of memory, and is to be considered a total disability on this account, although free from convulsions. The other was free

from convulsions for 18 months, but since then has taken two, about one year apart. Of the two who were classified as true epileptics, convulsions have occurred since operation.

Symptoms such as aphasia, loss of memory, monoplegia, convulsions, blindness, deafness, have not been benefited by operation, but symptoms such as distressing headache, dizziness, a feeling of insecurity, vertigo on stooping and a feeling of emptiness on the trephined side of the head, have been benefited by operation.

Conclusions

1.—The operation of cartilage-cranioplasty is the method of choice when a cranial defect is to be closed.

2.—A firm protection for the brain will be secured in 100% of operations.

3.—The operation will relieve the patient of many distressing symptoms.

4.—One can promise with a fair degree of certainty relief from those symptoms known as the trephine syndrome.

5.—Symptoms due to loss of brain tissue are not affected by the operation.

6.—No matter how carefully the operation of cartilage-cranioplasty is performed, the cranium is not normal.

REFERENCES

- (1) CHUTRO, *International Journal Surgery*, 1919, Vol. xxxii, 227. (2) PRIMROSE, *Annals of Surgery*, 1919, Vol. lxx.

Beriberi and Rice Neuritis.—Mataro Nagayo, Tokyo, does not believe that it is warranted to consider beriberi as identical with the avitaminosis or hypovitaminosis of animals. It is appropriate, however, to consider the rice disease as an avitaminosis, because of the fact that in the animal suffering from rice disease, the amount of vitamin B contained in the tissue and organs is remarkably diminished as compared with the normal state. In beriberi no decrease of vitamin is noticed. A condition similar to experimental rice disease exists also in human beings. It is a peculiar form of farin-

aceous malnutrition (Mehlnährschaden), and many occur in badly nourished infants of the poor, who are continually fed with solutions of polished rice powder. The Japanese term it Chiehiko dyspepsia. The findings in the organs coincide in every respect with those of rice disease, showing wasting, anemia, siderosis, atrophy of lymphatic apparatus and thymus, and other conditions. The recently discussed alimentary anemia, Nagayo thinks, is presumably the same as Chiehiko dyspepsia.—*Jour. Am. Med. Ass.*, Oct. 27, 1923.

Case Reports

DIRECT TRANSFUSION FOR ACUTE PHTHISIS FOLLOWING THE PUERPERIUM*

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Toronto

A case of acute phthisis following the puerperium in a woman aged 21 years whose babe was born August 1st, 1923, came under my observation September 1st, one month after labour. The temperature chart showed the typical rise and fall of the acute septic tuberculosis type of infection with a maximum rise of 104° F in evening and a minimum of 97° F in the morning. The fall in temperature was associated with a profuse night sweat. The sputum was abundant (about 40 gms.) per diem and was positive for tubercle bacilli. The course of the disease remained unabated for over eight weeks, when on November 2nd, it was decided to give her a transfusion of blood if possible from the father.

The father was a healthy man 63 years of age who had lived in close association with his tuberculous family for years. One son died of pulmonary tuberculosis in 1918. The natural immunity against this particular type of infection was expected to have a certain therapeutic value in arresting the progress of the disease. The scientific research work of Sir Almroth Wright proving that phagocytes when trained would ingest more bacilli than when untrained; the side chain theory of Ehrlich's that the antibodies of an immunized blood acted chemically against toxins and organisms, the theory of Metchnikoff that phagocytes were the true scavengers were deciding factors in giving this patient her father's blood.

The father's blood was tested and found to be in group three, the same as his daughter's and it was decided to give it by the direct method:—individual syringe 20 c.c. to be used. As citrated blood has less therapeutic value and is more liable to give undesirable reactions,

whole blood, unchanged was considered better in this case.

The patient was admitted to the Women's College Hospital, Toronto, on November the 1st. Next morning at 8.30 a.m., after a profuse night sweat, when the body fluids were low, 500 c.c. of the father's blood was transfused. The transfusion occasioned no distress or untoward symptoms. The patient said she felt fine after being put back to bed. That evening the temperature was 99.1° F. On the third evening the temperature was normal, night sweats had ceased, there was very little cough and no sputum.

It is now eight weeks since her transfusion and since her crisis there has been a marked gain in weight and no return of symptoms.

X-ray examinations of the chest and X-ray plates revealed the amount of damage that had been done to the lung tissue during the eight weeks of progress. A cavity oblong in character had formed in the central part of the middle lobe of the right lung and a smaller cavity in the lower lobe of the same lung. The left lung is apparently normal. The apices are clear. It is not too much to expect that these comparatively small cavities will heal by scar tissue with the aid of an artificial pneumothorax and that a complete recovery will follow.

Comment.

1.—Women suffering from acute phthisis following the puerperium might be saved the havoc of cavity formation if given an early transfusion of highly immunized blood.

2.—A crisis similar to the crisis in pneumonia was brought about as soon as the transfusion was given. The usual therapeutic measures after eight weeks' trial failed to have any effect upon the progress of the disease.

3.—Transfusions for this purpose should be given by the direct method since citrated blood has been given without satisfactory results.

4.—Late cases of generalized tuberculosis could scarcely be expected to respond to this form of treatment for evident reasons.

5.—Where one has reason to suspect a bacteriaemia as in acute miliary tuberculosis, or in

*Case report given at Academy of Medicine, Toronto, November, 1923.

meningitis, the same syringe should never be used twice for fear of infecting the donor. A very careful aseptic technique must be maintained.

Conclusion.

From the results in this case one has reason to believe that transfusion of immunized blood by the direct method might be considered a valuable therapeutic aid in the treatment of acute phthisis.

In cases of associated haemoptysis one must be guarded as experience in the use of this treatment does not justify a decision. Whether or not the increase in coagulation time of the recipient's blood would tend to offset the rise in blood pressure is open to doubt.

Further investigation seems essential before offering an opinion.

The New Rockefeller Addition to University College in London.—The completion of the building for the three closely allied sciences of anatomy, physiology and pharmacology represents far more than the mere provision of accommodation and equipment for teaching and research in anatomy and of an extension of the physiological laboratories. It is the expression of a far-reaching scheme of co-operation—involving on the one hand the closer correlation of teaching and research in anatomy, physiology and pharmacology, and on the other the linking up of the work done in the Faculty of Medical Services in the college with that done in the Medical School of University College Hospital. Moreover, the new building is a permanent symbol of the bond of sympathy that unites us in a common aim with the medical schools of America and with the Rockefeller Foundation, our great benefactor. By housing the departments of anatomy (with histology and embryology), physiology, biochemistry, and pharmacology in one institute, with a library and staff room in common, the way has been prepared for a closer co-operation between teaching and research in these subjects than has been possible hitherto. The new anatomy building is linked by means of a tunnel passing under Gower Street with the medical school of the University College Hospital, and it is anticipated that this physical avenue of communication will facilitate a freer intercourse between the workers upon the two sides of Gower Street, to their mutual benefit. affords ampler provision for teaching and research in experimental physiology, and makes

it possible for Professor Starling to remain in the college as Foulerton Research Professor of the Royal Society, even though he relinquishes the Jodrell Chair of Physiology and the directorship of the institute which he created. The Rockefeller endowment has made it possible not only to create a University Chair of Biochemistry but also to increase the accommodation allotted to this subject. It has thus become feasible to effect a reorganization in the teaching of this new and important branch of chemistry, and to provide for the needs, not only of the students of medicine, but also for the training of biochemists, for whom there is a constant demand in research and industry. For these a definite curriculum has been devised based on the fact that a biochemist should be above all a well trained chemist, as well as possessing a scientific knowledge of general biology or of biological subjects. On this foundation is built one or two years' work in the biochemistry department, selected students being given facilities to carry out original investigations during the latter part of the course.

A Case of Malta Fever in Man.—W. R. Tynedale and L. E. Viko, Salt Lake City, Utah, report a case occurring in a man who died three months after handling the placental tissue from an infected animal. Aside from old cardiac findings not significant to the illness, the necropsy showed only chronic passive congestion of the lungs and liver (enlarged, firm "nutmeg" liver) and a firm, fibrinous spleen. From the spleen cultures of *Micrococcus melitensis* were obtained.—*Jour. Am. Med. Ass.*, Dec. 15, 1923.

Editorial

OUR CANADIAN MEDICAL ASSOCIATION AND A NATIONAL SPIRIT

THE attention of our readers is directed to the report of Dr. Stewart on Inter-Provincial Relations and to the report of the "Western Provinces Conference" held recently, which appeared on p. 936 of the December issue. Reading between the lines one sees a beginning of the fruition of the labours of those who have fostered and developed the Canadian Medical Association and this *Journal*.

Geographical difficulties have been surmounted, the thousand mile desert north of Lake Superior has been bridged and East and West have been linked in co-operative effort. The progressive West has taken the initiative, the province of Saskatchewan has been organized, and both the President of the Association, Dr. Kidd, of Ottawa, and the General Secretary, Dr. Routley, deserve much credit for the effort they have put forth and for the time deducted from other duties.

The real work of the Canadian Medical Association is not merely the holding of an annual meeting or the publication of this *Journal*; these are only means to an all important end; the development of a national spirit, and the unifying of the medical profession in Canada from ocean to ocean. Strong, more or less independent, provincial organizations are necessary to breed a sturdy national organization and, reciprocally, an active national organization will give of its strength to the upbuilding of the sec-

tional societies. Each section has its problems, notably in education and legislation. In the main, these problems are the same in principle for all provinces, with minor differences in detail, especially in their application under varying circumstances. To this end our Association must act as a "clearing house" for all the provinces, gathering experience and information from every section, for the good of all.

Conferences such as the one reported demonstrate two things; firstly, a healthy desire to be broad-minded and to avoid sectionalism. Secondly, an independent spirit devoted to the upbuilding of the Canadian medical profession as a national organization, with a keen appreciation of the work accomplished by our own men in every province.

Before this goes to press there will have been held in Ottawa a meeting of the Executive of the Canadian Medical Association. The agenda is comprehensive and members of the Executive from all parts have signified their intention to be present. Here again we note with pride and gratification that spirit of self-sacrifice which is devoted to the general good. It has been said that Canada is a hard country and requires a virile race to conquer it. The example has been set. Let us all pull together and demonstrate that the virility of the medical profession can overcome all geographical obstacles.

TONSILLAR INFECTION AND SYSTEMIC DISEASE

THE works of Billings and others on focal infection marked a new era in medical knowledge. The suggestive theories of ten years ago have become accepted truths to-day and along these lines perhaps no region has attracted

more attention and investigation than that of the tonsils.

The importance of the tonsils as portals of infection or primary foci in certain cases of systemic disease is now established beyond any reasonable de-

bate. We have all seen troublesome cases of arthritis and "muscular rheumatism" clear up in a striking manner after a tonsillectomy. In other cases when the association of the disease with tonsillar infection has seemed clear the results of operation have not been as good as we had hoped for.

No reasonable man would suggest that the tonsils are the primary focus in all cases of arthritis, nephritis or the many other diseases where a focal infection seems likely to have been the starting point, but it has certainly been established that they frequently are at fault and should be carefully considered and investigated in all such cases.

Possibly the tonsil has received an undue share of blame and attention from the fact that it lends itself to the method of elimination in the search for all possible foci of infection. With the public demand for efficiency and action on the part of the medical man the tonsil is possibly sometimes needlessly sacrificed in grasping at a forlorn hope in the treatment of some refractory disease.

Health survey workers seem to have a stock question "How about your tonsils?" and to the physician or to the nose and throat specialist an appeal is constantly made to give a ruling in some individual case.

The subject may be considered under two headings.

(1) What are the indications of focal infection in tonsils?

(2) What is the prospect of improvement likely to follow the removal of infected tonsils?

Indications of infection may be (a) manifest or (b) latent;

(a) Manifest cases are those with gross inflammatory changes in the tonsils or a history of frequently recurring attacks

of acute or sub-acute inflammation in the tonsils.

(b) The latent cases on the other hand are those where the systemic effects of a focal infection are the chief indication of trouble. There may be complete absence of any local symptoms, with or without evidence of infected foci in the tonsils on careful investigation. In all cases it is essential to exclude all other septic foci by careful general examination, and the teeth must be especially investigated before condemning the tonsils. Other regions of special importance are the nasal accessory sinuses, the prostate in men, and the pelvic organs in women.

The taking of cultures from the tonsils, while it impresses the public, does not seem a very sound method of examination when one considers the vast amount of infection always present in the mouth.

(2) With regard to the second part or prognosis this will depend, first on how well the tonsil is established as the cause of the disease and, secondly how far the disease has progressed and how much damage has been done before operation.

In a simple arthritis due to tonsillar infection the results are most satisfactory and perfect recovery takes place. On the other hand a badly damaged heart or kidney will not be restored by operation but this may sometimes offer a hope of limiting the progress of the disease by lessening the danger of recurrent acute attacks. The question is not one that can be reduced to figures and percentages but each case must be considered individually by the internist and laryngologist together. In conclusion it cannot be too strongly urged that where a tonsil is to be dealt with as a focus of infection a complete and careful removal is the only operation that should be considered.

E. H. W.

THE X-RAY TREATMENT OF DISEASED TONSILS.

THE great majority of children suffering from chronically diseased and hypertrophied tonsils are very properly referred to the surgeon for opera-

tion. A few, however, are met with in whom contraindications to the use of the knife exist. In a certain number of these with limited foci of disease the

galvanocautery has been employed with benefit. Very recently however the effect of the action of the x-rays on such tonsils has been tried and found of some service. The first case treated by this means was a haemophiliac whose tonsils almost met in the middle line. Treatment was given with x-rays once a week for four months, with the result that at the end of the treatment a small piece of shrunken tonsil was just visible on each side of the fauces. No bad result from the x-ray treatment was noted at any time. This treatment was given two years ago. Since that time a demand has been made on x-rays for sterilization of septic tonsils. X-rays do not kill germs except in doses which kill all living cells, therefore the x-rays cannot cause sterilization by direct action. The rays, however, can remove the lymphoid tissue which nourishes the germs, and, just as in ringworm the fungus dies when the hairs are removed by x-rays, so the germs in the tonsils die as lymphoid tissue disappears under x-ray treatment. The disappearance of the lymphoid tissue is slow and treatment has to go on slowly; as a rule, treat-

ments should be given about once a week till twelve have been given. The dose of x-rays required is small and must be kept well within the safety limit. Two years ago a report (*Journal of Experimental Medicine*, June 1st., 1923, pp. 815-832) of forty-six cases of tonsils exposed to x-rays was published, in which it is stated that in all but four cases the treatment was followed by marked atrophy of the tonsils, and the haemolytic bacteria which were often present in the affected tonsil disappeared within a few weeks after the treatment had been completed. Acting on this information, Dr. Hickey, in Detroit, tried to stamp out diphtheria carriers by x-raying the throat and in an experiment with sixteen cases got a fifty per cent. success. Small doses spread over a long period is the essential of success. A rapid result with a large dangerous dose is contraindicated. At present the use of x-rays is limited to those cases of enlarged tonsils in children where operation is contraindicated and to similar cases in adults. Cases of rheumatism due to absorption from the tonsils have cleared up after treatment of the tonsils in this way. A. H. P.

THE SOCIAL ASPECTS OF MENTAL DEFECT

THE *British Medical Journal* of August 11th, 1923, in an editorial on the above subject states:—"The problem presented to society by mentally defective persons is three-fold: first, so to deal with them as to make their individual lives as healthy, happy and full as may be; second, to protect the community as far as possible from the economic, social and hygienic consequences of their almost inevitable failure to meet the conditions of life; third, to prevent them from becoming progenitors of like-minded descendants." A brief abstract of the discussion on "Mental Deficiency in its Social Aspects" at the annual meeting of the Association this year at Portsmouth, appears in this number. The problem in Canada is not different from that in England. We have thousands of

feeble-minded persons in Canada and more are being admitted every year. Are we doing all we can to carry out the three-fold programme presented above? We cannot agree with the Professor of Psychology in one of our Canadian Universities who tells us to leave the mentally deficient alone and they will die out. It is as much the duty of the medical profession to urge by every means possible that the mental defective be given every opportunity to become an asset in the community and that the community be protected from his acts as to insist that persons afflicted with tuberculosis should be given every opportunity to get well and that the community be protected from such a person spreading the disease. G. S. M

THE CENTENARY OF THE LANCET

OUR congratulations and best wishes go forth to *The Lancet* on the occasion of its centenary. For such fine achievements we must also allow ourselves even a tinge of envy—of healthy envy. There is in the Centenary Number a record of a fruitful period in the history of our profession, for *The Lancet* has been intimately and continuously connected with that history, and reflects it in its pages with freshness and great attraction.

There are few stories more fascinating than that which we find in the account of Thomas Wakley's early years of struggle. We may live in days apparently lacking the glamour of those in which he fought the injustices existing in the medical training of the day, when, in the space of ten years *The Lancet* engaged in as many legal actions arising out of such fighting, and to pay the cost of which the public were willing, more than once, to pay their money. In even

such a detail as the supply of material for the dissecting rooms there used to be an excitement and uncertainty which is absent from our more prosaic but less tragic methods.

But our days will possess a glamour of their own when we face our problems with spirit as high and zeal as keen as that of the men whom *The Lancet* brings before us again so vividly. We are inclined, perhaps, to view the enlightenment which has come to us in the last century with a complacency not without its danger. But not so may we read history, absorbing as it may be merely to trace development, to compare stages of growth, and to watch the gradual lifting of veils by such men as Pasteur, Lister and Jenner. There are still abuses which must be fought and reforms which must be brought about; there still are veils to be rent or lifted further; we have not yet traced cancer to "his extreme dwelling-place."

Committee Reports

REPORT OF THE COMMITTEE ON INTER-PROVINCIAL RELATIONS FOR THE YEAR 1922-23

A little only of the excellent material collected by correspondence can be summarized in a brief report. *Inter-provincial* relations are spoken of as though there might be antagonisms between provinces. There are none such. "Intra-Canadian" would be a better term. The difficulty is not *bad* relations but *no* relations at all, to speak of. Intra-Canadian relationships of all sorts are opposed by geography. Canada is great length with little breadth, and split by several wedges. West is separated from east by a thousand miles of wilderness. Geographical wedges are apt to become wedges of misunderstanding as well. People so separated don't meet often enough to either attract or repel one another; they re-

main strangers and indifferent. Shoulder to shoulder is rather hard to manage with one shoulder in Alberta and another in New Brunswick.

Another prime obstacle in the way of ample and useful relations is that the work of the doctor, and perhaps his temperament also, tends to individualism. If he joins societies and attends meetings it is always in spite of difficulties, and so he expects a direct and immediate return for his sacrifice in what he may gather of medical science at the meeting. The more remote but broader advantages that come from co-operation and union make less appeal. What may be called medical policies, or even politics, with plans for the advancement and betterment of the profession as a whole, interest only a few.

Means of communication between medical men throughout Canada are found in the

Journal and in the annual conventions. The majority of doctors look critically at their *Journal*, as at their favourite newspapers. If all suggestions were adopted, the *Journal* would rapidly become broader and narrower, deeper and shallower, thicker and thinner, more high-brow and more popular, cheaper and more costly. A better *Journal* certainly, if that be possible and if we can accomplish it, but in the meantime, and directly on the way to that better journal, a better subscribed for, better read, better supported journal. The *Journal* will certainly unite and enthuse the profession, if we diligently put these strong purposes into it; not otherwise.

About the annual convention as a gathering for the advancement and dissemination of medical science, not much need be said. It has always been respectable, often excellent, and sometimes eminent. It is a good market to which a man should bring the best he has in matter and in style, or not contribute at all. To merely put something over that will get by is not good enough. The highest standards should be insisted upon.

Even within the ranks of the committee there was difference of opinion as to the best and most attractive kind of subject matter for such conferences. The larger number held strongly that separation at a convention into several groups along the lines of specialties in practice tends exactly in the wrong direction. It deepens the rut of each specialty and narrows outlooks that should be broadened instead. Most of us need broadening rather than narrowing. General sessions need special points of view and special sessions need general points of view even more urgently. Some of us would not even advise division into the two primary groups, physicians and surgeons. Where does the general practitioner belong at a convention any way?

But our inter-Canadian relations have less to do with the teaching function of our Association than with its legislative and administrative functions. As a parliament the C. M. A. does not rank high, and we, its members, as legislators for the most part rank low. The meetings are sectional always, especially when held in the farthest east or the farthest west; and the torch of legislative or administrative policy lighted, say in Halifax one year can scarcely be carried alight to Vancouver the next. Even

the Council scarcely carries a quorum from one meeting to the next. A medical convention does not need continuity from year to year; a medical parliament does. A small and more permanent executive, unwillingly in all probability, has to carry on.

The original democratic assembly was the town meeting, in which everybody had a say and a vote. When towns got bigger, delegations had to be tried, and so representative government. Our medical parliament for Canada is still at the town meeting stage. Anyone may attend, may speak, and may vote, and those who *happen* to be there and to have the impulse or the energy to raise a right hand legislate for us.

It is the opinion of this committee that our parliament must be improved. At least a minimum of representation must be arranged for each meeting from each principal part of Canada. This representation would be more valuable, of course, in the Council than in the general sessions.

It will be said that we have this already in the Council, and so we have on paper. But attendance at Council is seldom if ever full or even representative. Payment of at least travelling expenses for distant Council members—presumably by the group they represent,—would emphasize their representative capacity, make the obligation of attendance greater, and equalize burdens. Members of Council, however, appointed, should serve for terms long enough to get a knowledge of the business and an interest in it. The Council should have at least a three-days' session and at the place of the annual convention, before the opening of the convention. That would give time for some real discussion of business beyond a mere march past of resolutions.

Inter-relations mean primarily impulses from centre to periphery and from periphery to centre. We have had so far no centre. A better attended, longer sitting Council would help to create such a centre. But we need a local habitation, a post-office address and visibility. We need a staff and especially the extension of such services as Dr. Routley has given us in the past year or two.

Impulses would travel out from such a centre; visits of the secretary to all provincial meetings and to some smaller ones also; com-

munications of many kinds; data at hand with which to meet local difficulties; active, intelligent, ready, prompt service.

And impulses from the periphery to the centre must not be left haphazard or entirely to voluntary sacrifice of time or voluntary interest. If our Association business or deliberations or legislation are serious we must take them seriously; if by-play merely, why not drop them altogether?

The president of the Association is by no means always even interested in the general affairs of the Association, but usually in the scientific side of the conference. He may never before have belonged to the Council and may never again belong. In any case at the time of the big meeting he cannot properly preside at the meetings of the Council. He has not time. The chairman of the Council does not need to be the president of the Association and usually should not be, but should be the member of the Council best fitted, most experienced, and most interested.

As medical men meet in larger or smaller groups there should be ever kept before them the need of maintaining personal, group, Provincial and Dominion inter-relations. They should be brought to see the privilege, or the advantage, or failing these, even the duty of such relations. Matters of general policy and of business should be brought on, not as each member reaches for his hat and rushes forth to catch his train, but should have a deliberate space at a principal session. Officers of all associations, larger and smaller, should be put into office carefully and kept in office longer than has been our custom.

As scientific men we cannot expect to get something out of our Association without putting something in; something of time, of effort, of thought, and indeed of money also.

It is the opinion of this Committee on Inter-Provincial Relations that all our inter-relations between larger groups will be improved more by a better working of our organized machinery than by a large amount of "Hurrah Boys" and much handshaking, though these have their values also.

The Committee on Inter-Provincial Relations for 1922-23 is given below. It is the same for the year 1923-24 with the regrettable exception that the chairman, Dr. M. T. MacEachern, who

had unique opportunities and fitness for service on such a committee, is unable to serve this year.

It will be noted that since this report was written some of its recommendations, not necessarily because recommended by it, have been carried out. The Manitoba Medical Association has still later adopted the principle of the payment of expenses of at least one delegate to one yearly Council meeting.

The committee request communications from men in all parts of Canada, addressed to Provincial Members, to the Secretary of the Committee, or to Dr. Routley. The committee named from east to west is as follows:—Nova Scotia, Dr. S. L. Walker, Halifax; New Brunswick, Dr. W. F. Roberts, St. John; Prince Edward Island, Dr. A. MacNeil, Summerside; Quebec, Dr. A. T. Bazin, Montreal; Quebec, Dr. Simeon F. Grondin, Quebec; Ontario, Dr. E. R. Secord, Brantford; Manitoba, Dr. D. A. Stewart, Ninette, (Secretary); Saskatchewan, Dr. R. G. Ferguson, Fort Qu'Appelle; Alberta, Dr. J. S. MacEachern, Calgary; British Columbia, Dr. M. T. MacEachern, Ottawa, (Chairman).

D. A. STEWART,
NINETTE, MAN.

Secretary.

INDUSTRIAL INTOXICATION

Report from the Committee on Industrial Disease in Ontario

Your "Committee on Industrial Diseases" is convinced that there are many more cases of industrial disease than has heretofore commonly been considered to be the case. As many as 650 different types of industrial disease arising directly from the wage-earner's exposure to substances used or produced in the course of his work have been recognized where a study of industrial diseases have been made. A few instances of conditions met with in Ontario follow:

(1) *Lead poisoning.*

Lead is used in about 150 different processes in industry. Examples of these are sawing and pasting of lead plates and assembling, in storage battery manufacture, compounding in rubber plants, paint and paint manufacture, glass manufacture, etc.

(2) *Benzol poisoning.*

Since the war the use of benzol has become

very common in industrial processes because of its excellent solvent properties for shellac, rubber, etc. Examples are its use in sealing preparations in the place of solder in the manufacture of tin cans, in the compound used for coating fabric in the production of artificial leathers, etc. It is also used in varnish removers and some cheap paints.

(3) *Mercurial poisoning.*

Met with in hat manufacture and in chemical plants in making preparations for the removal of shale in boilers and in treating water for certain industrial processes.

(4) *Carbon monoxide poisoning.*

Encountered in foundries and smelters where blast furnaces of different types burn coke or coal, among garage workers from exhaust gas, and in many other processes.

(5) *Silicosis of the lungs.*

Among workers in quartz dust met with chiefly in hard rock mining, granite cutting, and glass manufacture.

(6) *Dermatitis.*

(a) Dermatitis among workers handling sugar or sugar products in plants such as biscuit and candy factories. (b) Dermatitis from the use of dyes; for example, in woollen plants and in fur establishments—in the latter apparently associated with the use of ursoil, especially in dyed rabbit, muskrat and Manchurian dog. (c) Dermatitis from formaldehyde in rubber plants. (d) Dermatitis from the use of metol in photography. (e) Dermatitis from the use of cutting oils in machine shops. (f) Dermatitis from the use of cyanide in hardening steel and in gold refining.

These types of industrial diseases arise directly from the man's work and are distinct from the general medical conditions frequently met with to which it may be said that occupation has contributed. Tuberculosis is a case in point.

It is highly desirable that the Committee be informed as to the different kinds and number of cases with which medical practitioners in the province come in contact. A striking instance of the value of drawing special attention to the matter is afforded in the experience of Massachusetts General Hospital in Boston, where industrial disease has been carefully studied. For five years prior to the establishment of the industrial clinic there, 147 cases

were diagnosed as lead poisoning, that is, about 30 cases per year. In the first year of the industrial clinic 148 cases of lead poisoning were diagnosed or five times as many cases as in previous years. Doubtful cases were excluded. The experience there with some other types of occupational disease was equally striking. In Ontario, under the Workmen's Compensation Act, any disease may be compensated, but only seven of these diseases are specifically mentioned. The difficulty in interpreting the Act as it now stands is in some measure due to the lack of sufficient clinical data to make a diagnosis possible. Consequently, it is important that more data should be supplied in all types of cases.

Especially since the advent of workmen's compensation, employers to an increasing extent are looking for means of prevention of industrial diseases and periodical physical examination of workmen exposed to substances hazardous to health is one of the effective means to this end. This involves special attention to points in early diagnosis which serve as guides to a temporary change in the workman's occupation in some plants but do not constitute a clinical picture warranting diagnosis for compensation or for medical treatment purposes. For example, the presence of basophilia and of lead in the urine in a man engaged in a lead process would warrant his at least temporary removal from that work, yet, in the absence of further symptoms and signs, could hardly be called a case of lead poisoning from the standpoint of active medical treatment and compensation.

Medical practitioners are urged to send to the committee case reports of industrial diseases, as only by obtaining such data can the committee determine on its further action. If good data is furnished, the committee will endeavour to arrange it for publication, acknowledging its source.

This committee will render every assistance in its power to those who meet with difficulties in diagnosis in specific cases and it has the assurance of active co-operation on the part of the division of Industrial Hygiene, Provincial Board of Health, where considerable literature has been collected on this subject and from which abstracts covering the various types that may be met with can be obtained.

NOTES OF A VISIT TO SOME OF THE ANATOMICAL SCHOOLS
AND SURGICAL CLINICS OF EUROPE IN 1887*

F. J. SHEPHERD, M.D.

Montreal

IN May last I left home for a few months' holiday in Europe to visit friends, professional and private, and to see something of the medical schools and hospitals.

After various misfortunes, and a narrow escape from shipwreck where I was called upon to put in practice some of my surgical knowledge, I landed at Queenston, Ireland, early in June. Whilst in Cork I visited the medical school there but saw little but empty rooms, the session being over. From the equipment of the school I should say that the medical students of Cork have not the advantages you possess, for the laboratories, libraries and museums were conspicuous by their absence.

On reaching Dublin I was met by Dr. Cunningham, Professor of Anatomy in Trinity College, who did all in his power to make my visit a pleasant one. His anatomical rooms were the most complete of any I saw on my whole trip. The teaching of anatomy in Trinity College has reached a very high state of development since Dr. Cunningham's appointment a few years ago and the new buildings for anatomy were constructed under his immediate supervision. It was here I saw a most magnificent series of frozen sections and brains placed along the walls of the dissecting room under glass and embedded in plaster in specially prepared receptacles, the whole kept covered with alcohol. There were also numbers of beautiful dissections in spirits, made by students and demonstrators. All these specimens (frozen and others) had their separate parts

numbered and over each on the wall was the key or chart, to the part from which students could read as they ran. The dissecting room is of very large size in the shape of the letter L, in one direction nearly 130 feet long. The room is on the ground floor and has nothing above it. It is well provided with lavatories, cloak rooms and a specially large bone room for students. The bones are beautiful specimens and exhibited in glass jars, which the student can examine at his leisure. Connected with the dissecting room by a short passage is a lecture room capable of holding 500 students. Dublin has always been celebrated for her schools of anatomy, of which there are five or six at present, all very efficient.

The Royal College of Surgeons of Ireland has a very good school, under the charge of that able anatomist and embryologist, Professor Fraser,—also a Scotchman by the way.

The students not having so many lectures to attend as with us seem to have more time for the practical study of anatomy and so are able to elaborate their dissections. The examination in anatomy at Trinity College is very stiff, as I had occasion to observe for I assisted at one whilst there and at Dr. Cunningham's request set the papers in surgical and medical anatomy. Every student has to dissect out before the examiners some special region and to pass this as well as to answer the severe written and oral examination. The examination for each student takes several hours.

The Dublin hospitals are, with two exceptions, small ones, and in consequence the number of beds allotted to each attending surgeon and physician is limited. It occurred to me that the material was much too divided up to enable any one surgeon to have a very large experience. Professor Bennett kindly showed me through the University Hospital (Sir Patrick Dunn's) and with him I saw very inter-

*This lecture was not published at the time of delivery on account of its very personal nature, but now after thirty-six years, when most of the men I speak about are dead or retired, a description of the methods and men of 1887 may be interesting to the present generation of anatomists and surgeons. Many of the men referred to are already forgotten; the reputation of others lives on undimmed by years. The forgotten ones were once a power in the medical world and everyone knew of them—*sic transit gloria mundi*.

esting cases. Here the operating room is circular in form and a year or two ago they discovered that it was built in this form to cover the cesspool of the hospital. Here they had in the operating room the elaborate arrangements with pulleys for the reduction of dislocations of the shoulder and hip. The students are scattered amongst the various hospitals and in consequence the teaching is very varied, nearly every surgeon being a clinical teacher. Professor Bennett showed me the very fine surgical museum connected with the university school. It is particularly rich in injuries and diseases of bones. I saw there no less than 300 examples of Colles' fracture (a fracture first accurately described by Colles of Dublin), and innumerable cases of rickets. There is quite a number of skeletons of rickety dwarfs and one remarkable skeleton all of whose tendons and ligaments had become ossified; there is also an eight-foot giant. In no museum in the world perhaps are there so many specimens of rickets, osteoarthritis and rheumatic affections of bones as here. With us rickets is a rare disease, most of the examples seen being imported cases. I was told that rickets was quite a recent disease there, but I must confess that from the number of specimens seen in the museums (many of which had been there 80 to 100 years) this explanation was not perfectly satisfactory.

From Dublin I went to Belfast and was kindly treated by Professor Redfern. The school here is one of the old Kings and Queens Colleges. The regular session was not going on so I saw but little, but from what I saw and heard I should judge that the equipment was not all that could be desired. The museum is a good one and contains very fine examples of Colles' and other fractures. The late professor of surgery, Dr. Gordon Laing, devoted much time to it. Gordon's splint for Colles' fracture is well remembered. Whilst here I witnessed the ambulance corps of the medical school going through their drill.

From Belfast I went to Glasgow. Here Dr. Cleland, professor of anatomy, spent a day showing me the medical school of Glasgow University. The equipment is good but still the school is deficient in proper laboratories and the dissecting room very small. Professor Cleland is a well known writer on scientific

anatomy and philosophy and is one of the few anatomists who still clings to the theory of design and is unwilling to accept the explanations offered by evolution. I found him very genial and full of varied information. All his tastes incline to metaphysics, philosophy and poetry more than to anatomy in the modern acceptance of the term. Dr. Cleland showed me his small but interesting anatomical museum and also the magnificent old museum of anatomy collected by the celebrated Dr. William Hunter. This museum through which I merely passed, would occupy many hours of profitable study.

The principal hospitals in Glasgow are the old Royal Infirmary and the Western Infirmary. The latter is a very modern structure some distance from the centre of the town, containing 300 beds and every modern improvement. Dr. Russell, the superintendent, showed me over it. The chief feature which interested one here was the post-mortem room and the pathology theatre. It is just such an one as I hope to see in our new Victoria Hospital, and was built at the cost of several thousand pounds by a generous friend of the hospital. Connected with this is a small but well arranged microscope room. I did not happen to see much surgery here as Professor Sir George McLeod and his colleagues were holding the clinical examinations.

At the Royal Infirmary I was more fortunate; here I had the pleasure of seeing one of the ablest surgeons of the present day, Dr. Wm. Macewen. This surgeon is well known to you all as the originator of the operation for correcting the deformities of the limbs produced by rickets. The fame of his osteotomies is world-wide, and his method is described in all textbooks. He is a tallish, thin man, not much over 40, very decided in his opinions and rather dogmatic perhaps, but earnest, exact, a very acute observer and knows his own mind and acts on his own conclusions. He is very outspoken and is evidently a man of ready resource and great determination. Altogether Dr. Macewen impressed me more with his originality and ability than any other surgeon I met whilst abroad. He kindly, after the first visit, appointed a day which he could devote to me, and during that day we together discussed many of the most important points in modern surgery. Perhaps I should not say discussed,

for Dr. Macewen did most of the talking and I the listening, which I found very profitable. He had reserved some of his special operations, osteotomies and others in order to show me his methods, and the cases in his wards are remarkable. His series of hip joint excisions are phenomenal and his cases of radical cure of hernia are particularly noteworthy. Dr. Macewen's mode of dressings you are familiar with, as it is the same that has been lately introduced by Dr. Bell into our hospital. Whenever possible he uses only one dressing with bone drains. I saw some of his hip excisions walking about after six weeks. His operation for the radical cure of hernia is most successful in his hands, he having at that time had over fifty cases without a death, and all successful. He does not cut away the sac but puckers it up by passing sutures through and pushes it to the conjoined tendon and outer pillar of the ring and so uses it as a plug. He has operated some 60 times on the brain but has published very little, waiting, he says, till he can publish a large series (50) several years after operation so that the conclusions derived therefrom may be as correct as possible. He has a great contempt for those surgeons who rush into print having had only one case of any operation and before the final result, good or bad, can be known. In connection with his brain cases I saw one of a man who had had epileptic fits and had been a violent lunatic for years, but who recovered completely after being trephined by Dr. Macewen and a portion of bone with a small exostosis and some thickened dura mater removed. I saw another case in which he had removed a tumour the size of a chestnut from the brain of a child who had been subject to epileptic fits confined to one side. In this case after locating the lesion from the twitching of the toes and the thumbs at the commencement of the attacks, he took a large window out of the skull but found the dura mater perfectly healthy; he opened this and the surface of the brain was found healthy, but pressing on it with his finger he felt some resistance and then incised the brain substance and came upon the tumour about half an inch below the surface. He removed it freely, replaced the window he had taken away and when the first dressing was changed when I was there, three days after the operation, there was perfect

union by first intention. The ultimate result of this case I do not know.

Dr. Macewen was the first to transplant bone and he, in his cases of trephining, cuts the removed portion into small pieces and reimplants it. It was here I, for the first time since I left home, saw the rigid application of the antiseptic system. Dr. Macewen is so particular that he uses only his own instruments, which he carries about in a specially devised case, and not only that, but he will only have nurses in his wards approved of by himself. He is most particular. He uses the spray (in small quantities only) and during the dressings. When I asked him why, he smiled and could not tell me, "perhaps as a kind of fetish," he said. He said he had no doubt as good results could be got by other means but he liked the spray and was accustomed to it. He was formerly house surgeon to Lister. Any one going abroad would be well repaid by visiting Glasgow Royal Infirmary.

I next visited Aberdeen where I was entertained by my old friend Dr. Struthers, Professor of Anatomy at the university. The name of Professor Struthers has been known to all students of anatomy for the past 35 years, and as he is a member of the Medical Council of Great Britain his duties are more than local. He is quite a power in the University of Aberdeen and has been for years the chief source of strength in the medical school. He has improved the teaching of medicine in all its branches and is always endeavouring by the introduction of new methods and apparatus to increase the efficiency of the school. The medical school in Aberdeen is a very old one and formerly was called Mareschal College. There are nearly 400 medical students in Aberdeen. The college is a very well equipped one, and new departments are being continually added. Anatomy is very carefully and thoroughly taught, both practically and by lectures. Abroad, as a rule, the professor of anatomy receives sufficient to live on by anatomy alone; he does nothing else, and when not lecturing is always amongst the students in the dissecting room with his demonstrators who are appointed by him for short periods of time. Here we have not yet arrived at such a state of perfection; the fees do not enable a professor to live, and he has to augment them by the drudgery

and anxieties of practice and this, as a rule, does not tend to the output of much original work. In addition the professor of anatomy also teaches histology, as is the custom in Germany, this subject of course being properly anatomical.

In Aberdeen there were also some fine moist anatomical preparations about the dissecting room and in the museums, and many specimens of dissections, etc., prepared with glycerin and carbolic acid. The lecture room for anatomy is spacious, well lighted and ventilated, and plentifully supplied with slate blackboards and frames for diagrams. Dr. Struthers has a very fine museum of comparative and human anatomy in his department. Many of Dr. Knox's specimens are there and also many collected by the professor himself. Skeletons and dissections of whales, for which he is famous, were everywhere to be seen, and skeletons of most of the different orders of animals. Some of the old dissections of the arteries dried are very beautiful. To Professor Struthers this museum is a labour of love and nothing he likes better than to show the anatomical visitor its rare treasures. Subjects appear to be plentiful and the character of the dissection is excellent.

I also here met my old fellow student and friend, Dr. D. J. Hamilton, Professor of Pathology. His laboratory is very complete, having been fitted up and the Chair endowed by the late Sir Erasmus Wilson. Dr. Hamilton is a well known pathologist and an earnest teacher. He is a most ingenious man and does a good deal of his teaching in such subjects as bacteria, inflammation, etc. with the help of large models prepared from cardboard and wood. They are very interesting. He keeps no moist pathological specimens, but takes a cast of the fresh specimen in a preparation of gelatin and glycerin and then paints the colours so that the specimen looks very, "life-like" I was going to say, but perhaps "death-like" or fresh would better express what I mean. I saw many beautiful specimens showing lung and liver affections which looked very natural. His method of preparing brain sections is original. After a process of hardening he slices the brain into thin pieces and then places them in some preparation after which he varnishes them. By this method of preparation the brain does not

shrink and the sections are quite transparent; they show the direction of the fibres and other parts quite clearly. The sections are quite indestructible and can be thrown and shuffled about like a pack of cards; they look something like sheets of glue. For the study of practical pathology I know of no better place than Aberdeen, and no more pleasant or enthusiastic teacher than Professor Hamilton. Dr. Hamilton it was who originated sponge grafting.

The infirmary at Aberdeen is being rebuilt so that I did not see it under very favourable circumstances. However, Professor Ogston, of whom no doubt some of you have heard, kindly guided me about and showed me what was interesting in the surgical way. Ogston preceded Macewen in the osteotomy operation, but has now given up his own operation and practises Macewen's. He is also well known for his club-foot operations. He is a thorough Listerite on the old lines and envelops his operations in a cloud of carbolized incense. His ritual is orthodox and complete. I saw him do an abdominal section and although standing some feet off was drenched from head to foot with the spray and felt the chilling effects of the carbolic acid for some days afterwards. This case, by the way, was supposed to be one of extrauterine gestation, but proved to be an ordinary ovarian cyst, showing how uncertain diagnosis is in abdominal cases and how important it is to "get in and find out," as Mr. Tait has tersely said. Another case I saw of interest, namely, the treatment of innominate aneurism by the introduction of a coil of wire through which was passed a current of electricity for the purpose of coagulating the blood and forming a cure by clot. The immediate result was good.

I left Aberdeen and its beautiful surroundings with regret and I shall ever look back on my visit there with pleasure and the lavish hospitality of the professors of its venerable and world famed university shall not soon be forgotten by me. I might mention that many of the students at Aberdeen are English who wish to get the M.D. degree, which is, in their own country, got only with the greatest difficulty and after years of hard and expensive work.

My visit to Edinburgh occurred at rather an unfortunate time for seeing much in the surgical line, most of the surgeons of the infirmary

being away on account of the Jubilee celebration. My old fellow student, Dr. MacGillivray, one of the assistant surgeons to the infirmary, and with whom I was stopping, kindly showed me through the magnificent new infirmary which has replaced the old Royal Infirmary that existed when I was in Edinburgh some 13 years before. I had the pleasure of going through the wards and seeing the cases where Dr. Caird, assistant to Professor Chiene who was absent, was doing the work. I saw many interesting cases and was much struck by the fact that the surgery in Edinburgh, the cradle of antisepticism, was not distinguished by its cleanliness. I saw very few cases without suppuration and many had very high temperatures. The methods of dressing were a compromise between the old Listerian dressing and dry dressing; the combination was not a successful one. The spray was used by some surgeons but not by others and some used spray and washed gauze, others the charged gauze without the spray, etc. But perhaps I should not judge the surgery by the few cases I saw as I neither went around with Professors Duncan or Bell, but I must confess I was disappointed with Edinburgh surgery after what I had seen in Glasgow.

The anatomical department was more satisfactory. The new and magnificent buildings of the Medical Faculty of the University adjoin the hospital and the anatomical department forms no small part of them. Here the professor of anatomy, Sir William Turner, received me with great courtesy and conducted me through the place. The anatomical museum, which is under his especial charge, and in fact was created by him, is perhaps the finest of any in the world that is any connected with a university. It is nearly quite as large as the Redpath Museum and is splendidly arranged. Of course comparative anatomy forms a large portion of it. Slung in the centre of the ceiling is an immense whale some 80 feet long, elephants, giraffes, rhinoceroses, etc. and skeletons of the other large animals abound. Among the human skeletons are those of Burke and Hare, the garotters, who in Dr. Knox's time murdered people and sold them to the anatomical schools. "Daft Jimmy" a well known Edinburgh character was one morning found on the dissecting table. He had been seen alive and

well the night before and investigation found he was murdered by Burke and Hare. The dissecting room is a very large one, containing 30 or 40 tables and hung around the walls are plates and diagrams principally from MacLise and Quain's anatomy. There is a gallery on each side where the preparations are kept, some beautiful dissections in spirits and a series of brain preparations and frozen sections. Students who are not dissecting spend much of their time here. The reason spirit preparations are so common in Europe is because alcohol is so cheap and is sold to professors of anatomy for scientific purposes free of excise. A gallon of alcohol which would cost from 3 to 4 dollars here can be had for 2 shillings to 2 shillings pence, so when the spirit evaporates the cost of refilling is very little.

There are two other schools of anatomy in Edinburgh, namely, the School of Medicine and the Royal College of Surgeons. The first has Dr. Symington in charge of anatomy and the second, Dr. MacDonald Browne, both very able anatomists and excellent teachers. Their rooms of course are small and the number of students nothing like the number in the university (1800); on that account many go there because the teaching is more tutorial. Both these schools are well furnished with moist and dry specimens beautifully prepared. In the museum of the Royal College of Surgeons are many remarkable dissections by the late Sir William Ferguson.

I cannot attempt to describe all I saw in London; the number of hospitals is so great and the many eminent surgeons are so numerous that I can only hope on the present occasion to give a very sketchy account of them. After German surgery the surgery of London seems very conservative and old fashioned. The idea of antiseptic surgery does not seem to have been very thoroughly grasped by the older men especially, although they have the apostle of antisepticism in their midst. The surgery in London has always been good and the changes effected by antisepticism were nothing like so great as in Germany. This may in part be accounted for by the lack of enthusiasm which exists there on this subject.

At my old hospital of St. Thomas, I found Messrs. Croft, Sidney Jones and Sir William MacCormac, still active surgeons. The latter

I had the pleasure of seeing perform a suprapubic lithotomy. I found their assistant surgeons, who were old friends and fellow students, much more progressive than the older men—Anderson, Potts, Clutton, McKellar, are all surgeons who are very much alive. Mr. Clutton I saw very skillfully remove an enlarged thyroid. An interesting case had occurred under his care a few days before of which he gave me the history; it was as follows: Patient had on several occasions passed gall stones; in the region of the gall bladder was a small tumour. This suddenly disappeared and was followed by symptoms of intestinal obstruction. The attending physician was positive that the obstruction was due to the gall stone, and as the condition of the patient was serious Mr. Clutton cut down and found the stone impacted in the ileum about a foot from the ileo-caecal valve. Instead of incising the bowel and extracting the stone he pushed it on through the ileo-caecal opening and left it there, sewing up the wound. The patient got well with no bad symptoms, the gall stone being passed per rectum a few days after. Mr. Tait in such cases has lately advised breaking the stone in the bowel by piercing it with a needle.

At the London Hospital there is much to be seen. This is one of the best hospitals for foreign and colonial graduates for they offer special terms as to fees, have an enormous number of beds and a proportionately small number of students. Mr. Fred. Treves and Mr. McCarthy went through the wards with me and much in the way of surgical material was seen. Among the curiosities there was the Elephant Man, who was exhibited in London some time ago. This man has a most extraordinary development of cuticular and subcutaneous tissue. He is most intelligent and asks each visitor for books to read.

At Guy's Hospital I saw Messrs. Bryant, Lucas and Durham. I saw Mr. Bryant perform a suprapubic lithotomy and Mr. Durham excise a lower jaw. At University College, St. Bartholomew's, Charing Cross, the Epileptic and Children's Hospital, Great Ormond Street, I saw many interesting cases which time does not permit me to mention. I spent a most profitable day with Mr. Rickman Godlee of

University College. He took me to the Brompton Hospital for diseases of the chest, of which he is the surgeon. Here I saw many interesting cases of lung surgery, empyema, etc. and two cases of echinococcus.

The most interesting day I spent was at King's College Hospital where I saw Sir Joseph Lister. I saw him do very skillfully a difficult plastic operation on the face and an excision of the breast. His method of dressing is most simple. A little iodoform was dusted on the wound, over this some washed eucalyptol gauze and then a few turns of loosely applied gauze bandages. During the operation there is no spray and only a moderate amount of irrigation with sublimate solution. I asked him if he ever used the spray in abdominal cases or in opening empyemas. He said not and that in this kind of cases especially the spray could do but little good for the amount of spray which could enter the chest opening made to evacuate the pus was so small that it could have, in its diluted state, no effect on bacteria; on the contrary it, by the currents of air which it formed, became the means of introducing foreign particles in the air into the chest. In speaking about methods of treatment he said that his mind was at present in a state of uncertainty about the best methods and that his plan of treatment varied considerably from time to time. He impressed me as a man with a thoroughly scientific mind who did not ride his hobbies to death as is the case with many of his disciples. Professor Lister is always ready to accept other methods if they can be proved to be more advantageous than his own.

One of the most marvellous museums in the world is that of the Royal College of Surgeons which had for its nucleus the museum of the celebrated John Hunter. It is under the charge of Professor Stewart, and its arrangements are almost perfect. It is of huge size, several enormous rooms with three tiers of galleries running round the sides. As a museum of comparative anatomy, physiology and pathology, it has no equal in the world. Everything is so well arranged that by referring to the catalogues one can find anything one desires. There are specimens of interest to everybody. There is a wonderful collection of skeletons, both human and comparative. Among the

human skeletons the most celebrated is that of the Irish giant O'Byrne; there are skeletons also of midgets in great contrast. Weeks could be spent in this museum without exhausting half its treasures. It is just the place for any one to go who wishes to work up any special subject or class of cases.

The museum at St. Thomas's Hospital is also a very fine one and was commenced years ago by Sir Astley Cooper, many of whose specimens are still on the shelves. Amongst the most remarkable recent additions is a whole skeleton affected with osteo-porosis, and several very fine casts, looking very life-like, of Charcot's disease.

I must not forget to mention before leaving the subject of museums the most magnificent of all, the Natural History Department of the South Kensington Museum. Its director is Professor Flower, C.B., who kindly showed me all the interesting points. Professor Flower is well known for his work on comparative osteology of mammalia. The building is a perfect palace and cost several millions of dollars to erect, and any of you who may at any future time be in London should not fail to visit it. The collection of fossils is very fine and there is a magnificent collection of skeletons of extinct animals. The museum is arranged on

developmental and evolution lines and ranges from the lowest to the highest groups of animals. There is a very fine collection of feathers showing the gradual development of a plain feather from any crow or pigeon to the very complicated ones seen in the peacock. The collection of the birds with their nests and eggs is most interesting, but I have no time to dwell on the beauties of this wonderful place.

I visited Cambridge University, saw its fine museum of natural history and met the famous anatomist and surgeon, Prof. Humphry, well known for his classic work on the human skeleton. It is owing to Prof. Humphry that the Cambridge Medical School is so far ahead of Oxford. The medical buildings as yet are small and incommensurate, but when the new departments are ready Cambridge will be second to no school in the country. I saw something of the biologists there for I was a guest of Prof. Adam Sedgwick of Trinity College, the successor of the gifted Prof. Balfour, whose life was accidentally terminated all too soon in the Swiss Alps. In the museum at Cambridge is perhaps the finest collection of birds of New Guinea in the world. The birds of Paradise are marvellous; these are quite a recent purchase and had not yet been arranged.

Correspondence

RETAINED PLACENTA; EXPECTANT TREATMENT SUCCESSFUL

To the Editor:—

For the benefit of obstetric statisticians I wish to report the following case of a retained whole placenta. I was called to attend Mrs. R. T. Moonstone, Ont., primipara, age 29, whose labour pains commenced at least two weeks before expected time; 12 hours were required to complete the dilatation of the cervix and in the end the child was delivered by forceps. Manual removal of the placenta was attempted implanted in right cornu but failed. One week later a small piece of placenta came away; the

patient was now running a temperature of 102°, with a pulse of 90. Four weeks later temperature 100°, pulse 90 and under general anaesthesia a curettage was performed. Rapid and uneventful recovery. Highest temperature 102.6°, highest pulse 112.

The baby nursed the breast for three days, then was taken off for five weeks. Lactation returned and subsequently the baby took a prize at the fall fair.

This apparently is one more case in support of the "expectant treatment," for although an operation was eventually necessary, nature had probably made things a great deal safer at the later date. Yours truly, R. M. HARVIE.
COLDWATER, ONT., NOV. 29, 1923.

Abstracts from Current Literature

MEDICAL

A Case of Apoplexy of the Thyroid Gland.

Von Ziemack. *Obs. Gyn. and Surg.*, 1923, xxxvii, 539.

The author describes an unusual case, where the patient, a woman of sixty-five, who for years had had a moderate sized enlargement of the thyroid, suddenly after a great shock, developed acute dysphagia so severe that even water could not be swallowed. A few hours later her collar seemed to have become tighter and more uncomfortable. The tonsils and uvula were most anaemic. The isthmus of the thyroid became painful to the touch. The next day there was swelling of the lower part of the neck and the throat at the back. At the end of fifty hours two reddish dark haemorrhagic spots appeared at the jugulum sterni on either side of the mid line of the neck which seemed to indicate the point of entrance of the two external jugular veins through the fascia to the deep jugular veins. The extravasation of blood spread widely over the chest and neck in a few days. At the tenth day the extravasation had spread as low as the umbilicus in front and to the hips in the axillary line. The dysphagia gradually disappeared after the appearance of the discolouration of the skin; the mucous membrane of the throat gradually became normal in colour. Soon after this the patient completely recovered.

B. F. MACNAUGHTON

The Administration of Hypertonic Salt Solutions for the Relief of Intracranial Pressure.

Fay, T. *J. A. M. A.*, May 19, 1923.

There is a special satisfaction in the application of knowledge gained by experimental research; all the more is this so if the general practitioner finds it even reasonably possible to make the application. A great deal of experimental work has been done in connection with the effect of hypertonic salt solutions on intracranial pressure, and in late years the clinical possibilities of this work have become well recognized.

Dr. Fay reviews the results of using hypertonic solutions of magnesium sulphate in a

neurosurgical service for the last two years. In general, the aim was to reduce intracranial pressure by the dehydrating effect of such solutions. The application of this was possible in various directions. By this means symptoms could be elicited which were otherwise masked by hypertension in the cranial cavity, giving rise to headache, choked disk, vomiting and coma. Reduction of pressure before cranial operations is sometimes of great value, and was done as a routine measure in the writer's clinic. It is a valuable aid in relieving the coma and respiratory depression resulting from increased intracranial pressure. He quotes cases in which relief of these symptoms in traumatic head injuries was promptly obtained by administration of this salt.

He notes the favourable results obtained in such conditions as oedema of the glottis following Ludwig's angina; the reduction of papilledema in some forms of encephalitis; the clearing up of sudden oedema of the lungs following on injury of the cord at the fifth cervical segment.

The salt is best given by rectum, to the amount of three ounces dissolved in six ounces of warm water. It should be effective in about an hour, and may be repeated in four hours. If given by mouth, about one and a half ounces of the salt to eight ounces of water, is a sufficient dose, but though a little more rapidly effectual by this route, there are the disadvantages of possible vomiting and catharsis. By rectum, on the other hand, the salt is retained without distress. Where there is bowel irritation he adds a drachm of camphorated tincture of opium. The fluid intake must in the meanwhile be strictly limited. He discusses the comparative advantages of this salt and sodium chloride. The latter may be given in two-gramme capsules for the same conditions, but he found attendant results such as thirst and gastritis, which did not occur with the use of the magnesium sulphate. The difference depends partly on the fact that sodium chloride is partially dialysable, giving rise to an increased chloride content of the blood and a temporary chloride retention, while with the

other salt, which is non-dialysable, the effect takes place on the plasma only through the intestinal walls.

H. E. M.

The Value of the Electrocardiograph in Prognosis. Bloedorn, W. A. and Roberts, L. J. *Archives of Internal Medicine*, November, 1923, xxxii, p. 718.

The authors state that the electrocardiograph has definitely established itself as an invaluable aid in the diagnosis of the cardiac arrhythmias, and in this respect is superior to the polygraph. It gives a clear cut picture of the mechanism of the heart, the spread of the excitation wave, and the presence or absence of an abnormal rhythm. With this additional knowledge the physician can, in most instances, make the correct diagnosis of an arrhythmia by physical examination alone.

In addition, they also assert that as the result of innumerable tracings and researches by many investigators, the electrocardiograph has come to be of value to the clinician in the matter of prognosis. Attempts are made to correlate the findings of abnormal deflections in the electrocardiographic tracings with definite pathological conditions of the heart muscle. Certain of the abnormal deflections are coming to be regarded more and more as indicative of myocardial damage.

The two groups of deflections which have been particularly regarded with significance are the Q. R. S. group and the T. waves.

The Q. R. S. group normally should not exceed one-tenth of a second in duration. A tracing of longer duration means defective conduction through one or the other ventricle. A notching of the Q. R. S. group in leads other than lead III. is additional evidence of myocardial damage. The conduction system is regarded as specialized heart muscle, and constitutes only a small percentage of the total heart muscle tissue. It may be disturbed functionally without necessarily being organically damaged. Impairment of conducting system does not necessarily mean that remainder of cardiac muscle is also impaired. However, in the majority of cases, organic disease of the heart is an accompaniment of a defective conduction system.

Deflections of the T waves have also come to be regarded as giving information concerning

the state of the myocardium. Normally these waves are upright, except in Lead III. An inverted T wave in the latter is of no particular significance. However, an inversion of the T wave in Lead I. and II. the authors think, is associated with definite myocardial damage, and is sufficient reason for a bad prognosis.

They also suggest that one must keep in mind that the heart is able in many instances to recover from the effects of toxins or bacterial invasion, so the giving of a bad prognosis must be guarded against even when myocardial injury can be demonstrated. They also remind us that digitalis may produce significant changes in a tracing, such as an inverted T. wave, and a definite prolongation of conduction time. Infectious diseases may also give the same picture. It is when these abnormalities persist, that the authors feel more at liberty in using the tracing for prognostic purposes.

In their experience, the lesions most frequently found with this abnormality of the electrocardiogram are chronic myocarditis, arterio-sclerosis, hyperthyroidism, chronic nephritis, and disease of the coronary artery. Pardee and Master state that ventricular muscle disease is the important deduction to make from the finding of abnormal ventricular waves.

Willius states that significant T. wave negativity and an abnormal Q. R. S. complex is of the greatest value from the standpoint of prognosis.

Wilson thinks that when the T. wave is completely inverted in Lead I. and II. and there is no history of digitalis therapy, cardiac diseases may be diagnosed with a fair degree of certainty even when the Q. R. S. group is normal.

The authors report a case in which electrocardiograms were obtained illustrating the presence of Lead II. and inversion of the T. wave in Leads I. and II. A diagnosis of damaged myocardium was made and a bad prognosis given. Sudden death of the patient occurred within four months, and post-mortem examination of the heart revealed chronic interstitial myocarditis, and marked coronary sclerosis, with occlusion of the descending branch of the left coronary artery.

Their summary is as follows:

(1) The ability of the clinician to diagnose valvular disease of the heart and lesions of the conductive system is well established.

(2) If data can be obtained whereby we can more frequently detect myocardial damage a more accurate prognosis can be made.

(3) Evidence has been accumulating that electrocardiograms showing persistent straddling and splitting of the Q. R. S. complex and inversion of the T. wave in Leads I. and II. are indicative of myocardial damage.

(4) These abnormalities of the electrocardiogram are usually accompanied by other signs of a failing myocardium but in certain cases may be the one evidence demonstrable.

L. C. MONTGOMERY

PAEDIATRICS

Hydrochloric Acid Milk in Infant Feeding.

Faber, H. K., *Am. Jour. Dis. of Children*, Nov., 1923.

Faber states that the threshold of acidity for the activity of all gastric enzymes except rennet, is about PH. 5.0 and that cows' milk because of its high buffer content offers a marked resistance (about three times that of human milk) to the necessary change in reaction. It

has been found possible to neutralize the buffer of cows' milk by artificially souring the milk with cultures of lactic acid producing organisms (lactic acid milk and protein milk). Faber suggests that part of the good results following the feeding of these sour milk mixtures may be due to the increased activity of the gastric lipase.

Because of the marked variations in the acidity of milk soured by bacterial cultures, and because of its variations in quality, and expense when produced commercially, the author suggests the use of milk artificially soured by the addition of hydrochloric acid. He found that the addition of twenty-five per cent. by volume of tenth normal hydrochloric acid to cows' milk reduces the buffer value to approximately that of human milk. Such milk is slightly altered in taste, is taken readily by infants, produces no precipitate and leaves no "free" acid, all the acid being taken up by the basic phosphates.

The most striking clinical result seems to be the increased tolerance for fats on the part of the infant, and the production of smooth alkaline calcium soap stools. The tolerance for carbohydrate is apparently unchanged.

Reports of two cases of the author's series of thirty are given. He advises against the use of sour milk mixtures in early infancy.

R. R. S.

Chronic Ulcerative Colitis in Childhood. Helmholz, H. F., *Am. Jour. Dis. of Children*, Nov., 1923.

The author presents reports of five cases of this disease characterized by symptoms of chronic recurring dysentery with watery bloody passages, marked emaciation, persistence of symptoms in spite of treatment and the absence of any known etiologic factors such as B. Dysenteriae, amoeba, Balantidium coli, or tuberculosis,—making a definite clinical entity. The disease is described by Logan as a chronic inflammation of the large bowel of unknown etiology and showing all grades of inflammation from reddened, congested, easily bleeding mucous membrane, to superficial and deep ulceration, with constant or recurring dysentery lasting from many months to several years.

In the author's five cases of whom two died, there were complaints of frequent loose, bloody stools for many months, accompanied by tenderness and colic, and emaciation. Stool and blood cultures for the typhoid group, dysentery, etc., were repeatedly negative, as were also Wassermann and Pirquet tests. The positive findings consisted of ulceration of the large bowel as far as could be seen with the proctoscope, without contraction of the bowel; and by x-ray, a narrowed colon without any evidence of exhaustion (of which two plates are shown). The only even partially successful form of treatment was appendicostomy or colostomy, and irrigation with hot normal saline through the opening.

Necropsy on the fatal cases showed numerous ulcerated areas throughout the colon and lower parts of the small intestine. These ulcers showed undermined edges, with a little fibrinous material attached to the base, were of varying size and had in some places ulcerated through

the muscular coats to the peritoneum. There were no perforations.

The author concludes that there is no single definite etiologic factor in this condition. The ulceration usually begins in the lower portion of the bowel, extends through the entire colon sometimes with practically complete denudation of the mucosa, and only rarely is the ileum involved. Aside from complications the patients are usually afebrile. Medical treatment is not recommended for longer than six weeks, surgical intervention offering a better prognosis.

R. R. S.

PSYCHIATRY

A Study of the Mechanism of Obsessive-Compulsive Conditions. Greenacre, P. *Amer. Jour. Psychiatry*, April, 1923.

This study was made on a group of 86 patients, all of whom showed the development of well-marked phobias, compulsions, or obsessions. The outstanding feature in these cases is the invariable presence of a degree of insight. While driven by his fancies the patient realizes their absurdity and unreality, and is held in a frenzy of suspended activity.

Janet's conception of lowered psychological tension or psychasthenia, applied especially to feelings of unreality and indecision and somatic insufficiency, does not, in the author's opinion, give an adequate notion of the extraordinary energy and tension which is met with in obsessive compulsive conditions. The Freudian concept, on the other hand, explains the symptoms as symbolic reactivations of childhood, self-reproaches for sexual performances or tendencies, with early exaggerated divorce between love and hate so that the antagonism and conflict between the two dominate the most important reactions. The mechanism is akin to the affective states of the depression and anxiety neurosis on the one hand, and to the blander substitutive reaction of hysteria on the other. The patients in the author's group showed fairly definite social awareness and an acute sense of limitation or inferiority, but very rarely any intellectual inferiority. Marked emotional dependence, a sort of emotional infantilism, was conspicuous, also real or fancied sex inferiorities.

Three stages in the development of a pro-

found obsessive-compulsion or phobic condition were noted. First, a simple balancing of a wish with the fear of consequences. If either of these predominates strongly, the course of action is determined. If they are nearly equally balanced the individual is suspended in a state of indecision and conflict. This is very often the basis of simple obsession, as in the suicide obsession in which the patient is haunted by the thought, but has no intention of killing himself. Similar desire-fear situations may result if the circumstances are sufficiently urgent. The bank clerk experiences it if he is in need of money and covets a portion of what he is handling. He then becomes uncertain of the security with which he has locked the money, even though he recalls turning the key in the lock quite safely.

A second type utilizes the associative and substitutive capacities of the individual, so that instead of the original desire-fear situation being reproduced in the obsessive state, the conflict is unloaded upon some associated object or experience. An instance is given of a girl who had remained in her room for two years sooner than venture out on the street where she might pass a drug store containing bichloride tablets. She day-dreamed about herself as attractive to men, and both desired and feared illicit sex relations. She read in the newspaper of the suicide by bichloride of a girl illicitly pregnant. The bichloride then became the object of unreasoning prohibition.

The third type of mechanism consists in the substitution of a symbolic object or ritual for the original desire-fear situation. The conflict is unloaded on this, which is made a scapegoat to carry sins into the wilderness. Hand washing is an example, a form of ritual of cleansing from impurities.

Since all these mechanisms may occur at times and to a limited extent in normal individuals without devastation of the personality, it is obvious that the recognition of the mechanism alone is not enough to explain the tension in obsession-compulsive cases.

The determining factor, in the author's opinion, is that the subject of the obsession is invariably a wish whose gratification meets social condemnation, and that the fear of social disapproval in the event of gratification

tends enormously to intensify and perpetuate the conflict by actual repetition.

A. G. MORPHY

The Physiological Level in Dementia Praecox.

Raphael Theophile. *Amer. Jour. Psychiatry*, April, 1923.

The author finds that the work done by various investigators, notably Kraepelin, Ep-pinger and Hess, later by Büchler, Emerson, Mott and others, strikingly suggests the occurrence in dementia praecox of definite physiological deviation, hypo-oxidative in type, with definite vegetative implications.

On this basis he has made investigations in fifty-six cases, nineteen old or clinically adjusted cases, and thirty-seven still definitely in the acute or exacerbative stage. The tests employed were pilocarpin, eserine, atropine and epinephrine. No deviation was found in the first (adjusted) group, but in the second (acute) group deviations as high as 48 per cent. were found on the vagotonic side, indicating instability predominantly vagotonic.

A study of blood sugar tolerance in 32 cases revealed definite initial hypoglycaemia even in the fairly well adjusted cases, but more markedly in the acute or exacerbative cases. Initial hypoglycaemia suggests metabolic depression, a hypo-oxidative status essentially, with probable endocrine participation, particularly the thyroid, pituitary and suprarenal glands, the sympathetico-tonic group so-called.

Epinephrine glycaemic response was also investigated through blood sugar determinations after the intra-muscular administration of epinephrine in ten cases in all of whom definite abnormalities occurred apparently largely in proportion to the degree of phase acuity. Study of the hepatic function revealed definite indication of delay or functional insufficiency in all but one of the acute cases. Of special interest in this connection is the report of Rolleston indicating an especially high incidence of biliary stasis and calculi among the insane.

Basal metabolism determinations were carried out in eleven cases, including two adjusted and nine acute cases. There was slight diminution in all but two of the acute cases, varying from four to ten per cent., particularly in one catatonic case in which determination of thirty per cent. was found.

Erythrocyte fragility was also studied. The adjusted cases showed no essential change, but eighty-seven per cent. of the acute or exacerbative cases showed slight to moderate decrease in red cell resistance.

A summary of findings indicates a general metabolic depression in acute or exacerbative cases, and autonomic instability or dysfunction. This is in accordance with the findings of other investigators.

Autonomic control according to Cannon is essentially of mid-brain locus, and dementia praecox may conceivably represent reaction to ex-or endotoxemia to which the metabolic change may be secondary, although this is admittedly hypothetical; on the other hand, the endocrine situation may be the fundamental one, whatever its basis.

The matter of physical or psychic origin of the disease remains obscure, but one may postulate inferentially a certain endoerino-autonomic vulnerability which may become clinically manifest under psychic stress. A. G. MORPHY

SURGERY

Recurrence of Inguinal Hernia after Operative Treatment. Morrow, A. S. *Annals of Surgery*, Oct., 1923, lxxviii, No. 4.

The author states that the operation for the radical cure of inguinal hernias has, by many surgeons, long been considered one of the simplest of major operations and as relatively unimportant. Its almost negligible mortality rate, freedom from serious postoperative complications, and the extremely low percentage of recurrences as shown by the published statistics seemed to assure the patient of a reasonably certain permanent cure. These are erroneous ideas and based on inaccurate statistics where the methods of the follow-up of cases with a view to determining the end results have been poor; where common percentages have been taken from all types of inguinal hernias without eliminating certain cases where operation should never have been performed.

At the present time, with our properly kept statistics, eliminating accidents and certain selected cases where operation should never have been performed; by pronouncing no hernia as cured until a period of at least two years after operation and then only after careful ex-

amination by the surgeon rather than depending on the patient's report; and by separating the oblique from the direct types, we must realize that the curability of herniae is an altogether different proposition.

In attempting to explain the failures to obtain cures he groups recurrences under the following headings:—

1.—Those due to errors of judgment in selecting cases for operation and the type of operation to be performed.

2.—Those due to faulty execution of the repair.

3.—Those due to operative accidents.

We must recognize at the outset that there is a certain percentage of hernias which should never be operated upon because of the anatomical conditions present. Long standing and very large serotal hernias with atrophied conjoined tendons where the floor of the canal has been entirely obliterated will not permit of any type of repair remaining intact. This group comprises about 7% of all inguinal hernias. No one type of operation is suitable for all cases and the operator must select the operation which will best suit the case.

Dealing with the second group he considers that most recurrences are due to injury of the nerve supply and to strangulation of tissues by tight sutures.

Among the operative complications suppuration stands foremost as a causative factor of recurrence and relapses may be expected in at least one-third of all infected cases. Most of these cases could be avoided by more careful pre-operative preparation of the patient and the avoidance of undue traumatism of the tissues and more perfect haemostasis at the time of the repair. Another important factor is the lack of care in tying the base of the sac. All hernial sacs must be tied so that there is no dimpling of the peritoneal surface when the stump is dropped back into the abdomen, and the ligature must be secure. Moschovitz has reported a number of cases where recurrence was due to the transfixion suture slipping.

In concluding he points out the great advantage of local anaesthesia over general with the elimination of vomiting and straining and the attendant bronchitis or pneumonia which so frequently follows ether. Improvement in operative results is not likely to come from the

development of an operation based upon new principles, but in the elimination of those factors which are considered to be frequent causes of failure to obtain a permanent cure.

A. J. STEWART

Arthroplasty. Symposium at the International Society of Surgery, London, July, 1923. *Brit. Jour. of Surgery*, Oct., 1923. xi, No. 42.

The discussion was opened by E. W. Hey Groves. He points out that there are six essentials to be aimed at in the making of a new joint:—(1) To make a sufficient gap between the bone-ends; (2) To shape the articular ends; (3) To cover the articular ends; (4) To provide synovial fluid; (5) To provide ligaments and prevent undue mobility; (6) To restore function.

Mr. Groves' own summary of his elaborate paper is as follows:

1.—Arthroplasty should be defined as an operative procedure upon an ankylosed joint which has the object of restoring mobility.

2.—The pseudo-arthritis which sometimes results from a simple fracture proves that a new joint can be found, including articular ends which fit, capsule and synovia, without any plastic operation.

3.—Clinical evidence as to the result of arthroplasty is conflicting. There is ample evidence that operative mobilization of the elbow is usually followed by greatly improved function. Arthroplasia of the hip and knee often lead to disappointment or failure.

4.—The condition most favourable for arthroplasty is bony ankylosis due to trauma or pyaemia long since cured. Certain cases of tubercle and osteo-arthritis also give good results. The essential act in arthroplasty is to make a gap between the articular ends and to maintain this gap while healing takes place. Shaping and covering the articular ends are useful but not essential. Continuous traction on the new articulation and early voluntary movements are the essentials of after-treatment.

5.—In the elbow the indications include all cases of bony ankylosis free from active infection, except those in which a strong, useful arm is present in a labouring man. The best operation for the elbow is to preserve the whole width of the humeral condyles and to cover this bone with a free flap of fascia lata.

6.—In the hip three different types of operation must be considered. For simple ankylosis, an osteotomy of the neck of the femur with interposition of a flap taken from the trochanter or from the capsule. For massive ankylosis, with great bony hypertrophy, a subtrochanteric osteotomy with the interposition of a fascial flap, forming a saddle-shaped joint. For osteo-arthritis, excision of the head of the femur.

7.—In the knees the importance of stability and painlessness makes any mobilizing operation unjustifiable if the joint is fixed in good position.

It is only in the case of ankylosis of both knees that arthroplasty is to be considered. The use of free fascia to cover the lower end of the femur, the preservation of the lateral ligaments and the use of a jointed knee cage for some months after operation are the special points on which stress must be laid. If lateral mobility persists then the lateral and crucial ligaments must be reinforced by a second operation.

J. A. NUTTER

Arthroplasty. A critical summary of the discussion. Todd, Alan H. *Brit. Jour. of Surgery*, Oct., 1923.

The French view point was presented in a paper by Santy, read by Leriche of Lyons, embodying the views of the Ollier School. It was found that the "mobilizing resections" of Ollier, first published in 1869, had been since that time extensively practised with excellent results. Consequently they had done but few arthroplasties with the interposition of fascial or capsular flaps. In their mobilizing resections it was important that sufficient bone (averaging 5 cm. at the elbow) should be removed to allow of free play between the articular surfaces. And the point emphasized was the importance of removing every scrap of ossified or ossifiable capsule or other structure that might be supposed to contain ossified structures capable of being awakened to activity by the stimulus of operation.

Leriche's own opinion was, as expressed later, that, in the case of the elbow, arthroplasty with the interposition of a fascial flap gave results no better than those of a good operation of the Ollier type, and the latter he thought gave greater lateral stability. In the case of the lower extremity, however, he con-

sidered that arthroplasty has made an immense advance upon the older methods, and that Putti's method of knee arthroplasty constituted one of the most striking achievements of modern surgery, so much so that the time is coming when an ankylosis of the knee in good position will no longer be regarded as a sufficiently good result.

J. A. NUTTER

The Flow of Lymph from the Ileocaecal Angle and its Possible Bearing on the Cause of Duodenal and Gastric Ulcer. Braithwaite, T. R. *Brit. Jour. of Surgery*, July, 1923, xi, 7.

Subacute inflammation in this region gives rise to a more widespread peritonitis than in any other part of the alimentary canal. Is this inflammation, which usually spreads by way of the lymphatics, likely to give rise to disturbances in any other part of the abdomen? Many of the authorities have considered that duodenal and gastric ulcer, and certain kinds of indigestion are possibly due to inflammation of the appendix. In fact the workers in Moynihan's clinic have come to recognize three gastric conditions which enable them to make a diagnosis of a diseased appendix before the organ is delivered. These three conditions are (1) Pyloric spasm; (2) Pyloric congestion; (3) Enlargement of glands on the greater curvature of the stomach towards the pylorus. The investigation of this subject was stimulated by a case in which the ileocaecal glands were found to be jet black and a chain of pigmented glands was traced up to the duodenum and on to the greater curvature of the stomach.

The normal flow of lymph from the ileocaecal angle passes along the line of the ileocolic artery, the main efferent trunks passing in front of the third part of the duodenum reaching the group of glands massed around the superior mesenteric artery, and so to the lumbar chain. In living animals the writer was able to inject from the caecal wall the glands along the upper and lower border of the pylorus. In the human, 48 injections were made into the ileocaecal glands. He came to the conclusion that most of the lymph passes to join the lumbar group, but some passes upwards over the head of the pancreas to a group of glands along the inner border of the curved duodenum and might pass even beyond the pylorus.

In cases of chronic lymphadenitis injection

into the gland next below failed to enter the diseased gland, but aberrant vessels came into play which carried the injection fluid to the gland next above. Occasionally the injection fluid flowed backwards towards the gland below, thus proving that retrograde flow of lymph may take place. The statement must be accepted if we are to believe that gastric or duodenal ulcer might arise from absorption of infected lymph from the ileocaecal angle. In certain cases it was found that the glands along the right gastro-epiploic vein were injected. It was found that the dye had spread from the appendix by means of the omental vessels which by adhesion opened up another avenue for the spread of infection.

G. A. FLEET

Observations on the use of the Cautery in Peptic Ulcers. Balfour, Donald C. *Annals of Surgery*, August, 1923, lxxviii, No. 2.

In 1914 the author began the use of the cautery for the excision of certain types of peptic ulcers. Since then he has employed it in 425 cases. This article is a review of those cases and gives his conclusions in regard to the types of ulcer in which it is most applicable, and its contraindications.

He divides ulcers into three classes:—(1) Those with a crater 1 cm. or less in diameter; (2) Those with a crater from 1 to 2 cms. in diameter; (3) Those with a crater over 2 cms. in diameter.

The first group comprised 90% of all peptic ulcers. The advantages of the cautery were most marked in this group as the opening left in the stomach after cautery excision was much smaller and more easily closed than that following knife excision. The success of this procedure depends entirely upon the exact localization and complete destruction of the crater.

The second group varies in that the element of malignancy comes in without visible evidence and the stomach must be opened and the ulcer carefully palpated to determine that no cancer exists. If benign, the crater is exposed and excised with the cautery knife and the opening closed. This is followed by a gastro-enterostomy in all cases and is a very safe procedure. In a series of 529 cases the mortality rate was only 2.12%, far lower than that associated with any other type of operation, and gave 80% cures, 14% much improved, 4% with

no relief and only 1.1% were known to have developed ulcers subsequently.

The third group as shown by MacCarty's figures, should all be considered malignant. Here the cautery has its contraindications and a more radical operation must be performed, partial gastrectomy being the operation of choice. However, where these large ulcers are so situated that resection is not warranted as in ulcers high up on the lesser curvature, cauterization followed by gastroenterostomy may be carried out with little risk and with surprisingly good results.

In concluding he points out that cancer may occur after any operation for gastric ulcer, but almost all cases of cancer develop where the lesion has not been removed, and that cautery excision is as good if not better than any other method and with a much lower mortality rate.

A. J. STEWART

Chemical Changes in the Blood of Man After Acute Intestinal Obstruction. Haden and Orr, *Surg. Gyn. and Obs.*, xxxvii, p. 465.

The authors first give a brief summary of the experimental work done on dogs. They noted (1) that dogs affected with untreated pyloric or duodenal obstruction died in about four days. They all showed a fall in chlorides of the blood, usually with a coincident rise in the carbon dioxide combining power, followed by a marked rise in the non-protein nitrogen. (2) Dogs with pyloric obstruction treated with fifty c.c. of ten per cent. sodium chloride solution daily, beginning at the time of operation, did not show the blood changes noted above. (3) Dogs treated with 25% glucose or plain water developed these changes as rapidly as those having no treatment.

These authors report a number of clinical cases where there was intestinal obstruction, the blood showing a marked rise in non-protein nitrogen and urea nitrogen and a rise in the carbon dioxide combining power of the plasma and a fall in the chlorides. After relief of the obstruction and the giving of saline there was a fall in the non-protein nitrogen and the CO₂ combining power with a rise in the chlorides. The urine showed an increased non-protein nitrogen content and a great reduction in the total chlorides. Their conclusions are as follows:—(1) Definite blood changes are found in acute intestinal obstruction, manifested by

a fall in the blood chlorides, often a rise in the carbon dioxide combining power of the plasma and a rise in the non-protein nitrogen. (2) The fall in the chlorides is considered the chief factor in the change and indicates that the chlorides may be utilized by the body as a protection against the toxic agent. (3) The administration of sodium chloride in larger doses than that supplied by physiological saline is indicated in acute intestinal obstruction as a means of directly combating toxæmia. (4) Since an alkalosis is frequently present in intestinal obstruction, alkalis should be administered with caution.

(5) In the presence of the toxæmia of intestinal obstruction sodium chloride at an initial dose of one gram per kilogram of body weight should be administered. B. F. MACNAUGHTON

ANAESTHESIA AND ANAESTHETICS

Anaesthesia in Thoracic Surgery. Shelley, L. W. *Tubercle*, October, 1923, p. 13.

Certain considerations must be borne in mind in connection with anaesthesia in thoracic operations:—1. There must be freedom from movement, to prevent loss of time in readjusting the patient's position. 2. Irregular, hurried or exaggerated respiration must be avoided. 3. Complete muscular relaxation is not essential. 4. Anaesthesia must not be so deep that the cough reflex cannot be re-established within a minute. 5. The position of the patient is often one which increases the respiratory embarrassment and the difficulties of the anaesthetist. 6. Post-operative shock, the development of bronchitis or broncho-pneumonia, and the dissemination of tuberculosis must be specially guarded against.

Gas and Oxygen.—One third or one quarter of a grain of morphia should be given an hour beforehand. At the same time the eyes are carefully bandaged and the ears plugged with cotton wool to induce sleep. The administration is begun very gradually, cyanosis being carefully avoided. Putting the patient in position and the preparation of the skin are commenced when he is fully under. When the incision in the skin is made, the intercostal nerves cut or ribs resected a few breaths of chloroform may be necessary to obtain sufficiently deep anaesthesia.

Nitrous Oxide.—The great disadvantage in the use of this anaesthetic is the shock which

develops some hours after operation. To prevent this an injection of morphia should be given before the patient leaves the table and in addition 10 drops of a 20% solution of camphor.

Intratracheal Insufflation with Ether.—There are three advantages in this method, 1st, Positive pressure in the lung ensured; 2nd, The patient can be moved without interfering with the anaesthesia; 3rd, The depth of anaesthesia can be easily controlled.

Chloroform and Oxygen.—This is suitable for any thoracic operation unless there is myocarditis. It allows deeper anaesthesia than other methods and so reduces shock to a minimum.

With these three methods there should be no vomiting as the anaesthesia is light and there is no cyanosis. Post-anaesthetic bronchitis and broncho-pneumonia would be slight if every patient were subjected to a thorough oral cleansing. Patients who have nasopharyngeal catarrh at the time of operation should receive the treatment for post-anaesthetic bronchitis. W. B. HOWELL

The Classification of Deaths under Anaesthetics as Violent and Unnatural. Chaldecote, J. H. *Proceedings of the Royal Society of Medicine*, October, 1923.

Deaths under an anaesthetic in England are classified as "violent and unnatural" and followed by an inquest. Deaths due to surgical procedures, even if these are only operations of expediency, are regarded as natural. The only apparent advantage of the present system is that, if the patient's relations or friends are dissatisfied, the public enquiry clears things up. The disadvantages are much more obvious. The newspaper reports of the inquests create a terror of anaesthetics in the lay mind. This nervous apprehension increases the mental strain before operation. It causes some patients to postpone necessary operations. The inquests impose an additional strain on the nerves of the medical men themselves, especially those commencing their careers. A young man may have to administer an anaesthetic to a desperately ill patient. It will not add to his coolness and presence of mind to know that if the patient dies on the table he will have to face a public enquiry. If he and the surgeon neglect their duty and allow the patient to die without any attempt to save him the death

would be regarded as natural and no enquiry held.

Another drawback to the holding of inquests in these cases is that house doctors become very shy of giving anaesthetics and will not avail themselves of opportunities to acquire skill, obviously a disadvantage to the public. Great inconsistency is shown by holding inquests on cases of deaths which occur several days after operation, from indirect or delayed effects of the anaesthetic. It is hard to see what good purpose is served by an inquest on delayed chloroform poisoning, but not on death from shock, secondary haemorrhage or ether bronchitis.

The medical profession is anxious to learn from its failures and would welcome any form of enquiry which would be of practical use. Such enquiry, however, should be private. The writer suggests that a committee should be appointed by the Ministry of Health and should have the power to call for all records of fatal cases, clinical, operation and post-mortem. Then reports could be published in the medical press.

W. B. HOWELL

On Systematic Examination of the Heart.

Goodall, J. S. *Proceedings of the Royal Society of Medicine*, Oct., 1923.

To reduce the risk to, and discomfort of, the patient to be operated upon he should be given a thorough examination, especially with regard to the cardio-vascular system. There should also be more complete co-operation between physician, surgeon and anaesthetist than is usually the case. The writer hopes that in the future there will be a systematic routine examination of every patient before operation, by a properly qualified cardiologist. In this article the writer discusses at some length the information to be obtained by the ordinary methods of inspection, palpation and auscultation. He emphasizes the importance of the information to be obtained by the use of the electrocardiograph. Additional information can be obtained by the use of x-rays.

W. B. HOWELL

DERMATOLOGY

Treatment of Urticaria with Collosol Manganese. Mitchell, H. Mc. *Brit. Med. Jour.*, Sept. 29th, 1923.

Obscure and obstinate cases of urticaria are of such frequent occurrence that it is of interest to note a treatment which has been effective in at least a few instances. Dr. Mitchell assumes that the condition is due to the action of an irritant on the blood vessels at the point where the urticaria appears. The irritant may get there by the blood stream, as in the type of urticaria caused by eating shellfish, or it may be an external irritant, as in the case of nettle rash. According to his theory, metals given in a colloidal state increase oxidation and stimulate the protein colloidal particles in the serum, consequently giving rise to a greater activity in the destruction of the invading toxin.

Such a metal is collosol manganese, and this was used in the treatment of four cases of intractable urticaria. He gave 0.5 c.cm. intramuscularly, to begin with, and repeated it weekly, adding 0.5 c.cm. each time, up to 2 c.cm. The results in all four cases were excellent. Other cases had been treated with success by the same method, but enough time had not elapsed to include them in his statistics.

H. E. M.

Diphtheria of the Big Toe. Emrys-Roberts, E. *The Lancet*, Oct. 6, 1923.

This is the report of a case in which there was definite diphtheritic infection of the great toe. A blister on the base of the toe burst and became ulcerative; the foot swelled, the femoral lymphatics became enlarged, and the boy felt generally unwell. Five weeks of local treatment failed to clear up the swelling and ulceration of the foot, and the patient then developed giddiness, double vision and inability to read; there was also some tremor and weakness of the knees, with numbness in the hands and feet. At the end of eight weeks there was definite polyneuritis, involving the ocular muscles, the pharynx—slightly—and the limbs.

At this stage the ulcer was examined more closely and was found to contain the Klebs Löffler bacillus. Antitoxin was given and rapid healing ensued. Recovery from the polyneuritis has been slow but steady. There was no sore throat at any stage of the illness, and the source of the infection was not identified.

H. E. M.

Obituary

Dr. John W. Stirling died in his 65th year on December 11th last. Dr. Stirling received his primary education in Halifax, N.S., his native city, and at Galt, Ontario. He graduated in medicine from the University of Edinburgh in 1884, and later pursued special studies in ophthalmology and otology in Vienna, Berlin and London. Returning to Canada in 1887, Dr. Stirling took up practice in Montreal. After serving on the staff of the Montreal General Hospital and other institutions, he succeeded the late Dr. Frank Buller in 1905 as head of the ophthalmic department of the Royal Victoria Hospital, and as professor of ophthalmology in McGill University. Dr. Stirling was essentially a clinician, but associated himself fully with laboratory men. His contributions to ophthalmology were numerous and useful. He was an earnest, conscientious teacher, and had an interesting way of stimulating students to see for themselves the points in their cases. As a man Dr. Stirling was characterized by a rare charm of manner and a kindly consideration for all, that endeared him to a very wide circle of friends. He had numerous delightful outside interests, and was an example to all in the breadth of his life.

G. M. B.

Dr. James Glen Allan died at Lockport on the 12th of October. Dr. Allan graduated at the College of Physicians and Surgeons, New York, in 1880, and practised in that city until a few years ago when he was compelled to abandon practice on account of ill health. He then returned to Nova Scotia and lived at Wolfville until late in 1922, when he went back to his old home, "Glen Allan House," at Lockport. Early in 1923, he suffered from an attack of cerebral haemorrhage from which he never fully recovered. Dr. Allan was a man of many parts. A kindly, sympathetic disposition, a pleasant manner and a careful, studious attitude combined to make him an unusually successful

physician, while a cultivated mind and consistent friendliness endeared him to all his associates. He was 71 years old at the time of his death.

Dr. Percy Saunders died in England on November 25th.

Dr. Walter Sargeson Verrall, superintendent of the Toronto Orthopaedic Hospital died suddenly on November the 25th, aged 47 years.

Dr. A. B. Riddell, a well-known East Elgin physician died on July 30th, 1923, from arterio-sclerosis and nephritis. He graduated from Victoria University, Toronto, in 1886, after which he practiced for a short time in Springfield, Ont. Subsequently he established himself in Bayham, Ont., where he spent a very successful life of service. He was highly esteemed by the profession; at one time becoming President of the East Elgin Medical Association. His death came as a severe blow to all his patients.

Dr. Norman Telford. One of the younger members of the profession, who for the past four or five years has been in very poor health, passed away on November 28th, 1923, in the person of Dr. Norman Telford. He was born near Galt, Ontario, on December 23rd, 1881. During his early life he took up railroading for some four years, after which time he entered Woodstock College, obtained his matriculation from there and later entered Toronto University where he took up the study of medicine, graduating from there in 1909. He leaves to mourn his loss, besides his wife, two sons and two daughters. Dr. Telford's death is deeply regretted by his many medical friends in British Columbia.

Potassium Fluorid as a Preservative for Blood.—To preserve specimens of blood for chemical studies Ralph H. Major, Kansas City, Kan., uses a saturated solution of potassium fluorid, one drop being added to each 5 c.c. of fresh blood. No oxalate is necessary, since the potassium fluorid effectually prevents clotting. Care must be taken to prevent bacterial contamination.—*Jour. Am. Med. Ass.*, Dec. 15, 1923.

A Contribution to the Study of Pyelitis in Pregnancy.—According to Frederick Howard Falls, Iowa City, dilatation of the ureter, and edema of the mucosa of the bladder and ureter, together with an antiperistaltic action of the ureter, probably play an important predisposing part in the causation of pyelitis of preg-

nancy. Bacteriolysins and agglutinins are increased in the blood of most patients who are reacting clinically to this infection, and these antibodies are transmitted to the fetus. This acquired immunity has an important bearing on the failure of these patients to develop puerperal sepsis. Caesarean section should not be practiced to avoid contamination of the uterus by infected urine, except, possibly, in cases in which it can be demonstrated that the usual antibody formation is lacking. Recurrence of the symptoms may be totally absent in succeeding pregnancies, and this may be due to the immunity developed during the primary pregnancy. The prognosis for the fetus is not favourable, owing to abortion, prematurity or underdevelopment in a considerable proportion of the cases.—*Jour. Am. Med. Ass.*, Nov. 10, 1923.

News Items

GENERAL

The twenty-ninth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology is to be held in Montreal on September 16th, 17th and 18th next, with headquarters at the Mount Royal Hotel. The American Board for Ophthalmic Examinations will meet in Montreal during the session of the Academy and will hold their examinations on the 15th of September. Examinations in Oto-Laryngology will also take place at the same time so that Canadians will have a convenient opportunity of taking these examinations. The meeting of the Academy will be followed by a two-days' instructional course on the 19th and 20th. This is a course of lectures and demonstrations given by prominent men in special subjects and has proved a very popular move.

The fellow-members of Edinburgh University have been much gratified by the appointment of Dr. Andrew Balfour as director of the Rockefeller School of Hygiene in London. Soon after his graduation he served in the South African war, and he was then for ten years director of the research laboratories at Khartoum. He is a great authority on all matters of tropical medicine, and that fact led to his being made inspecting Surgeon-General for the expeditionary force in East Africa during the war. Mr. Balfour, who is a Watsonian and a graduate of Edinburgh and Cambridge, has found time to write several excellent novels.

NOVA SCOTIA

Dr. Hugh Blanvelt, of Lockport, has gone to England for post-graduate courses.

Dr. F. E. Gullison has been appointed port physician at Yarmouth for the United States Government.

Dr. D. Fraser Harris, Professor of Physiology at Dalhousie University, has gone to England to recuperate from his recent illness.

Drs. Geo. E. DeWitt, of Wolfville, and Geo. H. Cox, of New Glasgow, following their custom of recent years, have gone to Florida to spend the winter months.

Dr. J. G. Black, ex-M.P., of Windsor, one of the veteran physicians of Nova Scotia who was the first to urge upon Parliament the establishment of a federal department of health, is recovering from a very serious illness.

Dr. D. W. Hoare has resigned his position at the Victoria General Hospital, Halifax, to accept an important appointment with the Atlas Insurance Company. He has been succeeded at the hospital by Dr. G. A. MacIntosh.

The programme committee has already made substantial progress towards the arrangements for the 1924 meeting of the Medical Society of Nova Scotia, which is to be held at Amherst on the 2nd and 3rd of July. There are to be four principal addresses, dealing respectively with medicine, surgery, obstetrics and gynaecology, and the newer procedures in therapeutics. It is expected that the address in medicine will be given by a nominee of the Ontario Medical Association, as a first step towards the establishment of more intimate inter-provincial relations.

During November, the Halifax branch of the Medical Society of Nova Scotia held two largely attended clinical meetings. The first was at the Victoria General Hospital, when a number of unusually interesting cases were demonstrated and discussed by members of the surgical staff, after which the members were entertained at supper by Mr. Kenney, the superintendent of the hospital. The second meeting was at the Nova Scotia Hospital, when Dr. Lawlor, the medical superintendent,

presented a very able paper on general paralysis of the insane, while several cases illustrative of the paper were shown by his colleagues, after which the members enjoyed Dr. Lawlor's hospitality at supper.

The Osler Medical History Club held its first meeting of the season at the residence of Dr. A. G. Nicholls, on the evening of November 3rd. Dr. Nicholls read an exhaustive and exceedingly interesting paper on the herbalists, which was illustrated by a series of lantern pictures and by a demonstration of a number of old books from which much of the material for the paper had been derived. A second meeting was held at the home of Dr. M. D. Morrison on the evening of December 1st when Dr. Morrison presented a splendidly prepared paper on Sir Victor Horsley. The club has recently presented several valuable old medical books to the Dalhousie Medical Library.

The Massachusetts-Halifax Health Commission completed the fourth year of its existence in October. The following statistics have been compiled by the clerical staff at Health Centre No. 1:—

Total number of families enrolled	6,117
Total number of clinics	2,905
Total attendance at clinics	23,616
Total examinations at clinics	8,999
Total new admissions at clinics	5,677

The total number of instruction visits by the public health nurses and visiting housekeepers to the various homes, has now reached a grand total of 100,685. A few statistical comparisons give interesting and encouraging information. The average annual general death rate for Halifax City during the ten-year period 1910-19 was 20.2. In 1921-22, the last year for which statistics are available, the rate had dropped to 14.3. The infant mortality rate for the ten-year period averaged 182. In 1921 this was reduced to 97.5. The death rate from all forms of tuberculosis in 1918-19 was 167.8. In 1921-22 it had dropped to 85.6. There are naturally many reasons for this encouraging decrease, but the Commission feels that it has had no small share in salvaging lives in Halifax during the past four years.

Dr. Foster Murray, a recent graduate in medicine from Dalhousie University, has been appointed assistant in the Provincial Laboratory, Halifax. Dr. Murray is at

present completing a special public health course at the Johns Hopkins School of Hygiene, Baltimore, and will enter upon his new duties in January, 1924. His work will be under the general direction of the Massachusetts-Halifax Health Commission, and he will per-

form all the laboratory work of its health centres. Dr. Murray's special training will also be at the service of the medical profession in Halifax, to perform examinations, blood tests, etc. for those of the community who are unable to pay for such services themselves.

QUEBEC

Reorganization of the Royal Edward Institute has recently taken place by the creation of a medical board, and the installation of an X-ray plant and laboratory. Five daily clinics on the diagnosis and treatment of tuberculosis are held weekly and three clinical demonstrations are given to fifth year medical students attending McGill University.

The Hon. A. David, Provincial Secretary has announced that arrangements will be immediately completed for taking over the Laurentian Sanatorium for the Treatment of Tuberculosis, which was erected by the Laurentian Society for the Treatment of Tuberculosis, enlarged to 210 beds in 1918 by the Federal and Provincial Governments for the treatment of tuberculous soldiers to date. The residue of military patients have now been removed to other institutions, and the Provincial Government propose to renovate the institution and enlarge it to approximately 300 bed capacity. It will be operated under the Public Charities Act, so that accommodation can be had for poor patients. When opened the sanatorium will fill a long felt want in the district of Montreal.

G. H.

Three Rivers inaugurated their survey of tuberculosis on Monday, December 10th, by a public demonstration and banquet. Invitations were sent out to many of the prominent men in the province who are interested

in tuberculosis and to the doctors in the vicinity of Three Rivers. In the morning a demonstration was given at the new dispensary which has been opened for six months, by Dr. D. A. Stewart of Ninette. In the afternoon, also at the dispensary, short clinics and discussions were given by Drs. Dubé, Parfitt, Jarry, Harding, Leclerc and Couillard. In the evening a banquet was held at the Chateau Dubois, which was attended by about 150 guests. Dr. A. Lessard, Director of the Provincial Bureau of Health, presided. Others at the table were: The Hon. Dr. Beland, representing the Canadian Red Cross; Dr. Charles Parfitt and Dr. Wodehouse, President and Secretary of the Canadian Tuberculosis Association; Bishop Racicot; Judge Desy, Chairman of the local Association; Dr. Normand; The Mayor; Dr. Leclerc and others. Dr. Beland presented the Three Rivers Committee with a cheque for \$10,500.00 towards the expenses of the survey. This amount was contributed mostly by the Canadian Red Cross, Canadian Tuberculosis Association and the Sun Life Insurance Co. The speakers included those mentioned above. The idea of the survey is to establish a dispensary to ascertain as near as possible the number of those who are affected with tuberculosis in this district. The outline of the work follows that of Framingham and included, besides the investigation of tuberculosis, child welfare work and the care of mothers. The survey will cover a period of five years and the expenses are being paid by the Canadian Red Cross Society, Canadian Tuberculosis Association, the Provincial Government and the city of Three Rivers.

ONTARIO

UNIVERSITY OF WESTERN ONTARIO, LONDON

Extract from the minutes of the Senate meeting of the University, held November 23, 1923

The Faculty of Public Health recommends to the Senate that they authorize the general principles of the following course for nurses.

- 1.—Degree—Bachelor of Science (B.S.) in Nursing.
- 2.—Entrance Requirements—Complete College Entrance.

- 3.—Length of Course—Five calendar years to be arranged as follows:—

- (a) Twenty-eight months in a hospital where there shall be a course that is in all its details approved by the Committee of which the Dean of the Faculty of Public Health is Convenor.

- (b) Two years in the College of Arts in which the following shall be taken:—

First Year	
English 10, 11, 12	4 credits
Library Science 10a	½
One Modern Language	3
History 105	2
Economics 20	2
One of Mathematics 10, 12	3
Latin 10	1
Physical Training 10	1
— 16½	

Second Year

English 20, 21, 22	4
Philosophy 21	1
Modern Language of the first year can't	3
History 301	2
History 42, 43	3
Philosophy 30, 31 or English 30	3
— 16	

- (c) One year of 8 months to be spent in a course for Public Health nurses or Hospital Administration, or Hospital Instruction.

- 4.—No stars can be carried from Part (a) to Part (b) or from Part (b) to Part (c) of this course.

- 5.—The degree may be conferred at the Convocation in May with the understanding that field work in Public Health or Hospital Administration may be completed during the summer following if the field work has not already been done.

Passed by the Senate, Nov. 23, 1923.

UNIVERSITY OF WESTERN ONTARIO, LONDON

An extract from the minutes of the Senate meeting held on November 23rd, 1923.

The Faculty of Public Health of the University of Western Ontario recommends that the Senate establish the Degree of Doctor of Public Health, to be granted

by the Senate to candidates who may be presented by the Faculty of Public Health and who possess the D.P.H. degree of the University of Western Ontario, obtained as at present provided or an equivalent degree from any other approved university and also have prepared a thesis approved by the Faculty of Public Health representing useful research in any department of public health, carried on by the candidate under the supervision and with the approval of the said Faculty of Public Health, during a period of not less than twelve months subsequent to receipt of the D.P.H. of the University of Western Ontario.

The said thesis is to be suitably printed and a bound copy to be deposited with the Faculty of Public Health.

Passed by the Senate, Nov. 23, 1923.

On November 1st, Dr. Geo. Campbell of Ottawa addressed the Peterborough Medical Society on problems of infant feeding.

On November 29th, Dr. F. F. Tisdall addressed the Sudbury Medical Society on "Peculiarities of Diseases in Children."

At a meeting of the Sault Ste. Marie Medical Society on November 17th, Dr. Warner Jones gave a talk on "Tumours of the Bladder."

On November 1st, Dr. W. G. Cosbie addressed the Niagara District Medical Association at Niagara Falls, on the subject, "Obstetrical Injuries and their after-effects, with Special Reference to their Prevention."

The Victoria County Medical Society met at Lindsay on November 2nd; Dr. E. Morgan gave an address on "Diagnosis and Treatment of the Pneumonias of Childhood."

At a meeting of the St. Thomas Medical Society on November 9th, an address was given by Dr. Geo. Boyer on the subject, "Diagnosis and Treatment of the Infectious Diseases of the Nervous System."

The South Waterloo Medical Society met at Galt on November 8th, at which Dr. F. W. Rolph addressed the meeting on "The Etiology, Diagnosis and Medical Treatment of Gastric and Duodenal Ulcer."

On November 9th, Dr. Geo. S. Young of Toronto, addressed the Lincoln County Medical Society at St. Catharines on "Physical Diagnosis—The Examination of the Abdomen and Nervous System."

The North Waterloo Medical Society met at Kitchener on November 9th; an address was given by Dr. Geo. A. Ramsay of London, on "The Pathology of the Gastro-Intestinal Tract."

At a meeting of the Oxford County Medical Society held at Ingersoll on November 14th, Dr. J. A. Grant of London, discussed the office treatment of haemorrhoids and kindred conditions under local anaesthesia.

The Thunder Bay Medical Society met at Port Arthur on Nov. 17th; the meeting was addressed by Dr. Geo. S. Young on "Psychotherapy from the Standpoint of the General Practitioner."

At a meeting of the Grey County Medical Society on November 21st, the following addresses were given:—"Hypertension and its Relation to Vascular Function," by Dr. Wm. Goldie; and, "A Clinical Study of Tumours of the Breast," by Dr. Alex. Primrose.

Dr. C. L. Starr addressed a meeting of the Peterborough Medical Society on November 15th, on "Acute

Arthritis and Osteomyelitis." This Society met again on November 29th, and an address was given by Dr. G. S. Strathy on "The Differential Diagnosis of Pain in the Back."

On November 15th, the Sudbury Medical Society held a meeting which was addressed by Dr. C. S. Wright of Toronto, his subject being, "Some Explanations of Pain, in the Sacral Region with consideration of Sacro-lumbar and Sacro-iliac Lesions."

The district medical meeting of the Ontario Medical Association, Councillor District No. 5, comprising the counties of Peel, York, Ontario and Simcoe, met in Toronto on Thursday, November the 22nd, at the Academy of Medicine. Interesting clinical cases were presented by the staffs of the various hospitals in the city at the afternoon session. In the evening addresses were given by the Honourable Forbes Godfrey, Minister of Health and Labour; Dr. J. F. Argue of Ottawa, President of the Ontario Medical Association, and by Dr. T. C. Routley of Toronto, Secretary of the Ontario Medical Association.

The Perth County Medical Society has held a number of meetings within the last month. The following addresses have been given:—Nov. 1st, Dr. G. S. Strathy, "Common Disorders of the Sympathetic Nervous System;" Nov. 8th, Dr. H. I. Kinsey, "Differential Diagnosis in Chest Diseases;" Nov. 15th, Dr. Alan Brown, "The Physiology and Pathology of Digestion in Infants and its relationship to Practical Infant Feeding;" Nov. 22nd, Dr. E. G. Young, London, "Basal Metabolism;" Nov. 29th, Dr. G. Howland, "The Diagnosis of Sleeping Sickness."

The annual meeting of the Canadian Social Hygiene Council, took place on December the 10th and 11th at Ottawa, with the President, Honourable Mr. Justice Riddell of Toronto, in the chair. An extensive programme was presented, consisting of papers on the various questions connected with social hygiene. The list of speakers included Dr. John A. Amyot, Deputy Minister of Health for the Dominion; Honourable Dr. W. F. Roberts, Minister of Health for New Brunswick; Dr. W. F. Snow, General Secretary, American Social Hygiene Association, and the Honourable Dr. Forbes Godfrey, Minister of Health for Ontario. Papers were read by Dr. Gordon Bates, Toronto; Dr. J. Heurner Mullin of Hamilton, Dr. George W. Ross of Toronto, and Professor J. A. Dale of Toronto. The relation of the church to the question of social hygiene was discussed by Canon Vernon, Rabbi Brickner, and the Reverend Father Daly, all of Toronto.

The Ontario and Quebec section of the American Colleges of Surgeons, met at Ottawa on November 22nd and 23rd. An interesting programme was provided consisting of hospital clinics in the morning, and various special addresses in the afternoon. Amongst the addresses, those dealing with hospital standardization and the organization of the American College of Surgeons. Various other questions were dealt with by the superintendents from some of the larger hospitals of the country, and by the President of the Catholic Hospital Association. The round table conference on November the 2nd, was conducted by Dr. M. T. MacEachern of Chicago. Clinical addresses were given by Dr. George E. Crile, Dr. W. W. Chipman, Dr. W. Hutchinson, Dr. J. L. Chabot, Sir Henry Gray, Dr. F. N. G. Starr, Dr. Charles Mayo and Dr. J. L. Austin. Dr. Oscar Klotz, Professor of Pathology, Toronto University, addressed the college upon the importance of "An adequate pathological service for the hospital," and in the afternoon of November the 23rd, delivered an address on "The surgeon and the student."

The Western Ontario Academy of Medicine affiliated with the London and Elgin Dental Societies for a Combined General Session on Focal Infections, held in the Medical School Auditorium on October 31st. Dr. Weston A. Price, D.D.S., M.S., F.A.C.D. of the National Bureau of Dental Research, Cleveland, presented the dentists' side of the question, stating: (a) "That there is no general clear conviction in the minds of the members of the medical or dental profession as to what constitutes a potentially dangerous dental infection." (b) "There is no accepted etiology for such lesions of the mouth as periodontoclasia, or so-called pyorrhoëa alveolaris." He summarized the new viewpoint of dental pathology as follows:—The organisms that are chiefly involved in dental infections—namely, streptococci, obtain their elective localization qualities, when such exist, very largely from the host which furnishes to them their nutriment and environment, and that they do this largely through their wonderful capacity for adaptation. The data developed in my researches indicate that potentially equivalently infected teeth will, in different individuals, be attended by very different types of local structural changes in the supporting tissues. Decalcification and calcification processes, as reactions to irritants, have direct significance because they are a fundamental part of the defensive reactions. A long continued, or chronic, dental infection, which may have given no suggestions of tenderness, may (because of the absence of a local warfare and defensive fight) cause the breakdown of certain organs or tissues of the body, though it may take months or years to do it, during which time the tooth involved may never even be suspected. Thus, very many of the degenerative, or so-called old age diseases, may have as their contributing,

or as their principal causative factor, such an obscure dental focal infection, with or without local or systemic contributing overloads. I wish to discuss one of the most important of the methods used for making the diagnosis of dental infections—namely, the use of the Roentgen rays. It is currently believed that the actual conditions about teeth are largely as they appear to be in the roentgenogram. That this is often not true, is one of the greatest misfortunes which could possibly exist in relation to dental infections, since in them we are dealing with pathological states within vital structures and therefore beyond the possibility of direct examination. Dr. F. G. Banting who was a visitor to London as a guest of the Chamber of Commerce and Canadian Club, was present and discussed the subject of focal infections as influencing certain of the problems concerned in the treatment of diabetes. Dr. C. S. Wright of Toronto, led the discussion on focal infections and contributed his personal experiences in the investigation of chronic arthritis. He summarized the dental question as follows:—"My attitude regarding the dental question in general is that devitalized teeth are always a doubtful quantity; but often healthy-looking devitalized teeth may be left pending the response to the removal of the more grossly infected ones, or correction of other definitely diseased areas. When the disease persists and the only possible unhealthy areas remaining are devitalized teeth, their removal is justified no matter what the x-ray appearance may be, for, while it is a most valuable aid, it has its limitation and where the question of health hangs on such a possible cause I think there should be no hesitation in advising extraction.

SASKATCHEWAN

During the months of October and November Dr. A. MacG. Young, general secretary of the Saskatchewan Medical Association, assisted by Dr. Routley, general secretary of the Canadian Medical Association, have organized the whole profession of Saskatchewan into a number of district medical societies.

North Eastern Saskatchewan District Medical Society.—Beginning on October 12th they met the medical practitioners of north eastern Saskatchewan in Yorkton. Addresses were given by both Dr. Young and Dr. Routley setting forth the benefits to be gained from the organization of a local society, after which a short discussion took place and it was unanimously decided that such a medical society should be formed in their district and the following physicians were elected as officers: Dr. T. A. Patrick, of Yorkton, as President; Dr. J. C. Warren, of Canora, as vice-president; Dr. D. R. Livingstone, of Melville, second vice-president; and Dr. A. F. Laird, of Yorkton, as secretary-treasurer. It was resolved that the meetings in this district should be held alternately at Melville and Canora.

Saskatoon District Medical Society.—On the 13th October, Saskatoon was visited and a large number of the profession was present at a meeting at which Dr. Morse was in the chair. Addresses were given by both Dr. Young and Dr. Routley and it was resolved to organize the profession in that district into a society to be called the Saskatoon District Medical Society. Dr. Morse was chosen as president, Dr. J. F. Finn as first vice-president, Dr. A. K. Cameron as second vice-president and Dr. Ernest R. Meyer as secretary-treasurer for the district. It was arranged that the first meeting in the district would be held on the first Wednesday in November.

Battleford District Medical Society.—A meeting of the profession was held in North Battleford on October 15th for the purpose of organizing a medical society for the Battleford district, to which all the physicians practising within the area bounded by Lloydminster, Wilkie, Blainlake, and St. Walbourg were invited. Dr. J. W. McNeill was elected as chairman and Dr. Stanley Miller as secretary. Interesting addresses were given by Dr. Routley, general secretary of the Canadian Medical Association, who explained the plan of organization adopted in Ontario and which it is proposed to inaugurate in Saskatchewan. Dr. Young, general secretary of the Saskatchewan Medical Association, spoke of what it is proposed to do in Saskatchewan, and what had already been accomplished. After some discussion the organization of the society was proceeded with; Dr. Stanley Miller of Battleford, was elected as president; Dr. J. E. Moran of Lashburn was elected as first vice-president; Dr. L. A. C. Panton as secretary-treasurer; Dr. S. M. Scott and W. R. Fraser were chosen as members of the executive. It was resolved that the first meeting of the society would be held at the Battleford Mental Hospital on November 7th, at which a clinical demonstration of some of the mental diseases would be given.

Prince Albert District Medical Society.—A special meeting of the physicians of the Prince Albert district was held in the council chambers of the city hall, Prince Albert, at which addresses were given by Dr. Young of Saskatoon, secretary-treasurer of the Saskatchewan Medical Association, and Dr. Routley, secretary of the Canadian Medical Association, on the necessity for closer co-operation and co-ordination of the medical profession in the Dominion of Canada. Dr. Routley in his remarks showed how such a co-ordination had taken

place in many of the eastern provinces, and detailed the results advantageous to the profession and to the general public from such co-ordination. After several others had spoken a motion was made by Dr. Montreuil that a local society to be known as the Prince Albert District Medical Society, should be at once organized. Dr. Miller was elected as president, Dr. Mackay as first vice-president, Dr. Sutherland as second vice-president, Dr. Ede as secretary-treasurer, and Dr. Langlois and Dr. Merrifield elected as members of the executive.

The first regular meeting of the Prince Albert District Medical Society was held on November 6th at 8.30 p.m. at which papers were read by Dr. Mylks on "The Diseases of the Thyroid Gland," and by Dr. Humphries on "The Diagnosis of Gall Stones." The meeting was very successful.

Regina District Medical Society.—At a meeting of the medical practitioners of Regina and the surrounding district it was decided to at once form a new organization to be known as the Regina District Medical Society, its object being to bring the physicians of Regina and the surrounding towns into closer touch and to further the interests of the medical profession in the province. The following were elected as officers:—Dr. Morrison of Regina, president; Dr. Ferguson of Fort Qu'Appelle, first vice-president; Dr. Wilkinson of Covan, second vice-president; Dr. W. A. Dakin of Regina, secretary; Dr. F. J. Ellis of Regina, treasurer.

Swift Current District Medical Society.—On October 25th a successful and enthusiastic meeting of the profession in the district of Swift Current was held on October 18th, and was addressed by Dr. Routley, Dr. Leask and Dr. Young. After discussion a motion was carried unanimously that they should at once organize themselves into a society to be known as the Swift Current District Medical Society, with the following as officers:—President, Dr. McArthur, Swift Current; first vice-president, Dr. McCue, Gull Lake; second vice-president, Dr. Irwin, of Swift Current; secretary-treasurer, Dr. Sharpe, Swift Current. Dr. R. R. Stirrett, Swift Current and Dr. Morse were elected as executive officers.

Moose Jaw District Medical Society.—At a special meeting of the Moose Jaw Medical Association held on Oct. 19th, after interesting addresses by Dr. Young of Saskatoon and Dr. Routley, general secretary of the Canadian Medical Association, a general discussion took place on the necessity of organization, and it was moved by Dr. P. M. Bayley of Moose Jaw, and seconded by Dr. Goodwin, that a new medical society be formed to be known as the Moose Jaw District Medical Society. This society was to replace the Moose Jaw Medical Association. The following were elected as officers:—Presi-

dent, Dr. T. B. Underhill, Moose Jaw; first vice-president, Dr. Story of Tuxford; second vice-president Dr. Ramsay of Moose Jaw; secretary-treasurer, Dr. H. Gordon Young of Moose Jaw.

Weyburn District Medical Society.—A meeting of the profession of Weyburn and its locality was held on Oct. 19th, and after addresses by Dr. Routley and Dr. Young it was decided to organize a local medical society. The following officers were elected:—president, Dr. J. S. Allen, of Democrat; first vice-president, Dr. A. MacDonald, of Khedive; second vice-president, Dr. A. Creighton, Estevan, secretary-treasurer, Dr. J. T. McGillivray, Weyburn; Dr. C. Merrick of Weyburn and Dr. E. Campbell of Weyburn were placed on the executive committee.

The Saskatchewan Medical Association, for a period of more than a year, gave much consideration to the necessity of thorough organization of the province by means of branch associations. With this end in view, it was finally decided to call the profession together at eight centres in the province, it having been previously arranged that Dr. T. C. Routley, General Secretary of the Canadian Medical Association, in company with Dr. A. MacG. Young of Saskatoon, Secretary of the Saskatchewan Medical Association, should visit the centres chosen and outline the basis of the suggested organization.

In accordance with these arrangements Dr. Routley and Dr. A. MacG. Young met at Yorkton on Friday, October 12th, at which city the first meeting was held, and, during the following week, covered the itinerary which had been mapped out, when the following district medical societies were enthusiastically organized:—Yorkton, President, Dr. Patrick; Secretary-Treasurer, Dr. Laird; Saskatoon, President, Dr. Morse; Secretary-Treasurer, Dr. Myers; Battleford, President, Dr. Miller; Secretary-Treasurer, Dr. Panton; Prince Albert, President, Dr. Miller; Secretary-Treasurer, Dr. Ede; Regina, President, Dr. Morrison; Secretary-Treasurer, Dr. Dakin; Swift Current, President, Dr. McArthur; Secretary-Treasurer, Dr. Sharpe; Moose Jaw, President, Dr. Underhill; Secretary-Treasurer, Dr. Gordon Young; Weyburn, President, Dr. Allen; Secretary-Treasurer, Dr. McGillivray. The attendance at all of the organization meetings was excellent, being largely representative of the practitioners of the province. To many of the meetings, members came a distance ranging between 75 and 125 miles. Each district, following its organization, decided upon its plans for the coming year, and chose speakers for subsequent meetings. It is worthy of note that seven of the eight districts met simultaneously on November 7th, while the eighth, Prince Albert district, held its meeting on November 6th. The Saskatchewan Medical Association believes that the organization of the medical profession of the province has been established on a sound basis, and looks forward to much progress being made during the coming year.

BRITISH COLUMBIA

Dr. O. Van Etter, late of Revelstoke, is now at New Westminster, engaged in general practice.

The annual dinner of the Association was held in November, about 150 members being present. This annual social function is always eagerly anticipated and was this year, as usual, a great success.

The American Health Association to-day announced that Dr. George A. Lamont, Vancouver, B.C., has been awarded a resident and travel scholarship to permit him to further specialize in various aspects of child health activities.

Dr. H. B. Maxwell of Vancouver, who, since his return from overseas has been employed with the Soldier's Civil Re-establishment, has been appointed medical officer to the Miners' Benefit Association of the Canadian Collieries (Dunsmuir Limited) at Ladysmith.

The Educational and Publicity Committee of the B. C. Medical Association is arranging for an active campaign in the New Year. Health articles in the press have already appeared and many others are in course of preparation. A moving picture film on "Cancer," on loan from the American Medical Association, has recently been shown in several small towns. This film

is accompanied by a medical man who gives an address, under the auspices of the B. C. Medical Association, and appreciative audiences not only prove the importance of this work but the desire of the public to learn something about the prevention of disease from those most qualified to teach.

The January luncheon of the Association will be addressed by Mr. E. S. H. Winn, chairman of the Workmen's Compensation Board. Mr. Winn is perhaps the greatest authority in B. C. on "Health Insurance," and his views should have great weight with the profession. Mr. Winn was Chairman of the B. C. Government Health Insurance Commission which made a thorough investigation of the matter in 1919.

Dr. F. C. Bell, of Winnipeg, who will be remembered as being in the office of the D.M.S. (London) during the war, has accepted the position of superintendent of the Vancouver General Hospital in succession to Dr. Malcolm T. MacEachern. Dr. Bell took up his duties in October last. One of the first improvements under the new regime will be the removal of the X-ray department to one of the large general wards, which is being fitted up in the most complete and up-to-date manner for diagnostic and therapeutic purposes.

The second monthly luncheon of the B. C. Medical Association was held in Vancouver on Nov. 30th, when an audience of 100 medical men listened to a very eloquent and instructive address from Dr. H. E. Young, (Chairman, Provincial Board of Health) on "Health Insurance." The speaker had evidently given this important question much thought. Taking the subject from three angles: the Government, the Public and the Medical Profession, Dr. Young convincingly pointed out the necessity for the profession taking the initiative in evolving some scheme of health insurance which would give the public a better service and ensure the medical man payment for services rendered.

The opening meeting of the winter session of the Vancouver Medical Association was held on the 2nd of October, when Dr. F. J. Buller, the president, delivered a most interesting address. At the second meeting of the session, Dr. W. D. Keith read a most original and

instructive paper on the prevalence of endemic goitre in men and animals in B. C., more particularly in the Pemberton Valley District. Dr. Keith said he was indebted for most of his data to the observations of Mr. John Ronayne of Pemberton Meadows, which extended over the past 18 years. Dr. Keith emphasized the wonderful results obtained by Mr. Ronayne among his stock by the administration of small doses of iodine.

The Pacific North West Medical Association will meet this year in Vancouver, June 26, 27, 28, under the able presidency of Dr. A. S. Monro of this city. The territory comprised in the Association includes five of the north-west Pacific States and the three western provinces of Canada. It was organized to enable the practitioners in this part of the west to hear of the advances of scientific knowledge from recognized leaders of the profession. Its sessions are entirely devoted to scientific work and no extraneous interests are allowed to detract from this aspect of its work. The committee in charge of the programme has been fortunate in securing a galaxy of Canadian and British talent for the meeting. The following have accepted invitations to attend:—Sir John Thompson Walker, London, England; Dr. Frederick C. Cotton, Surgeon-in-Chief, Boston City Hospital, who will speak on "Reconstruction Surgery." Dr. W. W. Chipman, Professor of Gynaecology, McGill University; Dr. Charles Hunter, Manitoba University; Dr. Horst Oertel, Strathcona Professor of Pathology, McGill University; Dr. L. G. Rowntree of the Mayo Clinic; Dr. F. N. G. Starr, of Toronto; Dr. L. J. Austin, Professor of Surgery, Queen's University. Dr. Taylor, of Toronto University, will speak on medical subjects. The committee is in correspondence with several noted British physicians and others in an endeavour to secure their attendance next June. A cordial invitation is extended to all members of the profession in Alberta, Saskatchewan and particularly in British Columbia, and it is confidently believed that it will pay everyone for the time and money expended if he can attend the 1924 meeting in Vancouver. The committee of the Summer School of the Vancouver Medical Association has decided to join forces with the Pacific North West Medical Association for this occasion and further the interests of the meeting to the utmost of its ability, and consequently there will be no separate session of the Summer School in 1924.

The Transmission of Arsenic from Mother to Fetus.—Rabbits and cats were injected with neo-arsphenamin, intravenously by Frank P. Underhill and Frank G. Amatruda, New Haven, Conn. After the desired number of injections had been given, the animals were killed. The tissues to be examined for arsenic were oxidized by Gautier's method as simplified by Johnson and Chittenden. The method for examining quantitatively the arsenic in the tissues was that of Gutzeit as modified by Sauger and Black. The maternal, fetal and placental tissues were examined for the presence of arsenic after the animals had received a varying number of injections. In practically every case,

traces of arsenic were detected in the fetal tissues. The amount of arsenic obtained from the fetal tissues was never more than a trace, regardless of the number of serial injections received by the animal. On the other hand, examination of the maternal liver and placenta shows that the amount of arsenic recovered from them increases with the number of serial injections the animal had received. From the results obtained there is little doubt that arsenic is stored up in the placenta and maternal liver after serial injections, as contrasted with the fetal tissues.—*Jour. Am. Med. Ass.*, Dec. 15, 1923.

Book Reviews

Aids to Bacteriology. Fourth Edition, 264 pages. By W. Partridge. Published by Balliere, Tindall and Cox, London..

This small book is intended, presumably, for the few whose interest in bacteriology is confined to remembering a number of superficial facts long enough to pass an examination. The correctness of the title may therefore be questioned. The table of contents includes sections on apparatus, media, technique, and individual pathogenic bacteria, spirilla, higher bacteria, protozoa, metabolism of bacteria; bacterial diseases of plants, filterable viruses, bacteriology of water, milk, sewage, etc., disinfection and disinfectants. The size of the book has necessarily limited the treatment of all subjects to outlines and mere statements of fact, so that the presentation lacks completeness, is of little value for the student, and, in many places, for want of discussion, fails to give a present day view point. It cannot be recommended. H. B. M.

Diseases of the Skin. By Robert W. MacKenna, M.A., M.D., B.Ch. Price \$6.75. Published by McClelland & Stewart, Toronto.

There are several outstanding features in this work which will be appreciated especially by students,—namely; the classification based on the causation is good; the description of the various diseases is clear and not too long; the treatment given is practical. The work can be recommended to all who are interested in dermatology. D. K. S.

Principles of Bacteriology. By Arthur A. Eisenberg, A.B., M.D. 2nd edition, 214 pages, illustrated. Price \$2.25. Published by C. V. Mosby Company, St. Louis, 1923.

The fundamental principles of bacteriology have been embodied in very concise form in this small book. Section one, which treats of general bacteriology, contains accounts of laboratory procedure and technical methods, adequate stress being laid upon sterility and disinfection. In section two, or special bacteriology, the common pathogenic micro-organisms are briefly described and references are made to well-known diseases produced by protozoa. The paragraphs on the struggle between bacteria and the body, infection and immunity, are very lucid expositions of the prominent theories which are offered in explanation of these phenomena. The work is systematically done and should constitute a useful reference, or text, for elementary students of bacteriology, and particularly for nurses. M. M.

Anaesthesia in Children. By C. Langton Hewer, M.B., B.S., M.R.C.S., L.R.C.P. 110 pages with 31 illustrations. Price 4s. 6d. net. Published by H. K. Lewis & Company, London, England.

A small volume of 110 pages containing in a concise form most excellent material regarding the administration of all the important anaesthetic agents to children. The author lays stress on the great importance of the selection of the proper agent to employ, the following points being considered:—(1) The relative safety to life of the drug both in its immediate and after effects; (2) The patient's general condition; (3) The nature of the surgical procedure. In treating of the various methods of technique he covers the whole range from the simplest drop method to the use of the more complicated mechanical appli-

ances in common use, pointing out the application of each to different types of operation. He deals very clearly with the degrees of narcosis required in anaesthetising children and on this point alone presents facts which are not generally appreciated by those who are called upon to administer anaesthetics to children. The book is not too technical but is written for the use of the general practitioner.

C. H. R.

A Form of Record for Hospital Social Work. Gertrude L. Farmer, Boston. J. B. Lippincott Co.

As the author states in her introduction, this book was compiled with an endeavour to make hospital social record writing less of a burden to the social worker. With this object in view, and also with the idea that there should be a standardization of all hospital social work, she has illustrated by what she considers typical case records taken from the files of her own department, what headings are necessary to present a word picture of the problems met, and how they are solved.

In choosing her record form she has considered three types of needs.

(1) The slight service rendered to many, and requiring but little investigation.

(2) Intensive social case work indicating follow-up service needed to complete the medical treatment, plus the adjustment of social problems.

(3) Intensive social case work indicating medical follow-up, plus long continued social adjustment in very complex situations.

She has chosen to use the summary rather than the chronological method of record writing. Her argument in favour of this method is that it saves time and space used in writing "miles of records that no one ever reads." Whether or not one agrees with her in this, one must acknowledge that it emphasizes the necessity for thought as well as action.

Her book is a valuable contribution to those organizing hospital social work. J. M. K.

Walter Reed and Yellow Fever. By Howard A. Kelly, M.D. 8vo. of 352 pages with 14 portraits and other illustrations. 3rd edition. Baltimore, 1923. Price \$2.50. The Norman Remington Company.

It speaks well for the interest in medical biography and the story of the progress of science that a third edition has been demanded of this fascinating narrative of a great life, with special reference to his contribution to the conquest of disease. The era of great advance in tropical medicine was heralded by Ross and his discovery of the mosquito transmission of malaria. The quarter of a century which has elapsed since his epoch making researches has been a period rich in additions to medical knowledge. Laveran's discovery of the parasite of malaria in 1880 made the differential diagnosis of malaria possible and yellow fever had such a definite clinical picture as to be readily recognized when well developed. Yet the tropical fevers as a general group were not differentiated. To-day it is changed. We have been able to separate out many fevers upon an etiological basis, and their diagnosis made certain by clinical laboratory studies. Expeditions from various universities, tropical schools of medicine, and government laboratories, have visited endemic centres and made clear the causes of many obscure conditions and diseases. Many brilliant scientists have sacrificed their lives while

working upon these problems, the solution of which have resulted in the saving of thousands of lives annually, and some of the deadliest spots on the globe may now be visited and resided in with freedom from disease formerly endemic and epidemic.

No more moving story of heroic self-sacrifice has been recorded than that of Walter Reed with his co-workers, James Carroll and Jesse Lazear, who demonstrated in Cuba that the mosquito is the means of transmitting yellow fever from man to man, and who in a most dramatic manner demonstrated that fomites play no part in the contagion.

Dr. Kelly has told the story well. He has drawn a delightful picture of Reed as a student, as a medical officer in the frontier life of the American west, of his indefatigable efforts to advance his knowledge and fit himself for research, with his crowning achievement in Cuba which has resulted in the disappearance of yellow fever as an epidemic disease, wherever fought by constituted authority with medical science.

The history of yellow fever is recounted with a list of the epidemics of the past 200 years. Ross's work as the foundation of all later researches in the field of insect-borne diseases, receives due notice, for this leads up to Reed's great discovery which places him among the immortals of medical research. There is no greater romance in medicine than that of tropical disease research with the exploits of its scientific workers, their heroic courage and all too frequent martyrdom. Kelly's story of Reed's part in wiping out one of the great slayers of countless millions is one to be read by all young physicians. It is a fascinating narrative and a worthy tribute to the memory of a truly great man.

J. H. E.

Manual of Determinative Bacteriology. By D. H. Bergey. First Edition, 442 pages. Price \$5.50. Published by Williams and Wilkins, Baltimore, Md., 1923.

A key for the identification of organisms of the class Schizomycetes has been arranged by a committee of the Society of American Bacteriologists of which D. H. Bergey was chairman.

The earliest workers in bacteriology realized that these simple living forms were essentially different from the more complex higher types of plant and animal life. Even amongst the unicellular organisms significant differences were recognized on morphological grounds, and, from this basis, attempts were made to group together those organisms which exhibited similar characteristics. Thus a simple classification was achieved.

New workers contributed their quota to the sum-total of the knowledge of bacteriology, and the increased information resulting from their labours required enlargement and revision of the then existing classifications. There came into prominence the new aspect of the work—the consideration of the biological characteristics of bacterial growth, and its increasing importance demanded again a complete revision of such keys as were then extant.

In 1901, Chester's *Determinative Bacteriology* was published, but the enormous amount of investigation which has been carried out since its publication, has caused this formerly valuable book to become antiquated.

Castellani and Chalmers in their *Manual of Tropical Medicine* published in 1919, and Buchanan, who published a series of papers on "Nomenclature and Classification of Bacteria" in the *Journal of Bacteriology*, devised classifications, parts of which the committee has adapted without modification, as well as valuable portions from other classifications. Incorporated also in the new systematic arrangement, are revised and renamed sections from the classifications submitted by the preceding and other investigators.

Since no other bacteriological code of nomenclature has been formulated for the guidance of bacteriologists, the committee has adopted the International Rules of Botanical Nomenclature, adopted by the International Congress of Vienna (1905) and Brussels (1910), in so far as these rules could be made to apply to bacteriology. They recommend, however, that French, English or German may be substituted in the diagnosis for Latin, which is required by the system of botanical nomenclature. Certain generic or specific names have been discarded, either because they had been previously applied to other genera or species, or because of uncertainty as to the characters of the bacteria falling in this genus or species. "For these reasons a number of new genera have been recognized, following, in part, Buchanan, by raising sub-genera to genera, and by adopting certain generic names suggested by Castellani and Chalmers." Then they have omitted all incompletely described species, as it is believed that many of these represent duplication. Each organism or species included is exhaustively described. The whole system is sufficiently elastic to allow for inclusion of new species. A complete explanation of how to use the key which is very easily followed, is given. The classification as presented by the committee, represents an enormous amount of exceedingly careful work, and is as complete as the committee, after much careful consideration could justifiably make it. The committee have designed the book with "the hope that it will be valuable to the student in classifying unknown cultures, and that it will serve to stimulate efforts to perfect the classification of bacteria since they regard it, not in any sense final, but merely a progress report leading to more satisfactory classification in the future."

M. M.

Public Health Up-to-date. A short course in modern public health. By H. W. Hill, M.B., M.D., D.P.H., L.M.G.G.

In this excellent booklet of forty pages and concise index, Dr. Hill puts before the public in readable form a discussion of many problems of public health.

Short chapters are given on the new public health "ease and disease," "what must we do to live," "protection against disease," and "race maintenance." Originally gotten out for the London Life Insurance Company, this little booklet deserves a wider circulation, for it contains the elements of the present day theories of public health in an attractive and readable form.

N. B. G.

Physical Diagnosis. By Richard C. Cabot, M.D., Professor of Medicine in Harvard University. Eighth edition, revised and enlarged; pp. xxi + 536, 6 plates and 279 figures in text. Price \$5.00 net. New York, 1923, William Wood & Company.

In this new edition of Cabot's *Diagnosis* we find numerous changes. It is an excellent work for the general practitioner and student, encouraging as it does careful observation in the process of diagnosis, and avoiding complicated laboratory procedures. The author frankly states it is not a compilation of methods which have been advised by various writers but is based upon methods of examination which he uses regularly in his own work with simple laboratory methods in general use. The author is more than ever convinced that chronic bronchitis is to be looked upon as a symptom and not as a disease. He not only considers that acute bronchitis is frequently bronchopneumonia, but that chronic bronchitis is generally a chronic pulmonary oedema from weak heart action, and quotes Lord's 161 autopsied cases in which the correct diagnosis was heart weakness in 103, neoplasm in five, tuberculosis in 31, chronic pulmonary infection in 15, with 7 other conditions. The work is a safe, sane and helpful guide to diagnosis; well illustrated,

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well arranged, full of good common sense, and withal concise. The many errors in the page references in the index will be a source of annoyance in event of need of hurried reference. J. H. E.

Introduction to Medical Biometry and Statistics. By Raymond Pearl, Professor of Biometry and Vital Statistics in the School of Hygiene and Public Health and of Biology in the Medical School, the Johns Hopkins University. Illustrated. pp. 379, including index. W. B. Saunders Co., 1923.

No one doubts that Dr. Pearl knows intimately and admirably the "how" of his great specialty. This book shows also that he can present it in that same intimate and admirable way. Excellently printed and illustrated, with a text direct, simple, philosophic and full of quaint humour, this presentation of vital statistics is really entertaining, a feature not usual to such books, as well as enlightening. The author, thoroughly at home in his subject, and conversant with the difficulties his students have evinced in their struggles with ordinary books has here approached his subject from the standpoint which one would choose if he knew nothing of the technical problems involved, but he understood the needs, and were looking for a solution. Beginning so, the book develops the reader to the desired end. Science is not science until it becomes quantitative. The difference between cooking and chemistry lies chiefly in the exactness of the measurements used for the phenomena encountered. Dr. Pearl makes a specialty of exact measurements in human biology—and in other directions also. He devotes a chapter to medical records, with concrete directions, condensed to most practical forms; another to life tables; a third to the theory of probabilities; and many others to equally important yet everyday statistical questions.

No modern physician but may benefit professionally from this book, and few but will enjoy the witty human aspect of statistics here presented.

One cannot read intelligently modern medicine without some notion of the probable error, deviation,

variation and correlation of statistics. This is all here, in simple form, well worth the time to read and study it.

H. W. H.

International Clinics. Thirty-third series, volume iii, 1923. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U. S. A. with Medical and Surgical Collaborators in United States, England and Canada. Price \$2.50 per volume or \$10.00 for the series of four. J. B. Lippincott Company, Montreal.

Some twenty-four papers appear in this number in the departments of medicine, surgery, morbid psychology, pediatrics and legal medicine. The leading article is from Van Leeuwen of Leiden, Holland, on the therapy of allergic diseases. He states that of 200 asthmatics treated by tuberculin, fifty per cent. were cured and another thirty-eight per cent. notably relieved. The general practitioner will find much of interest and help in the articles on falling of the hair, the commoner diseases of the eye, ear and throat, thyroid therapeutics, duodenal ulcer, bacillus coli infection in children, and the diagnosis of renal tuberculosis. There are good surgical papers and a report of medical cases from the University of Geneva. The articles on morbid psychology are of great interest particularly that of the therapeutics of pain by James J. Walsh, which may be read with profit by all physicians. J. H. E.

Mental Hygiene and the Public Nurse. By V. May MacDonald, R.N. 77 pages, price \$1.50. Published by J. B. Lippincott Co., 201 Unity Building, Montreal.

This small volume will serve as a text-book for those for whom it is written, namely, the public health nurses. It may be said to be very brief and one would wish for a little more detail in regard to mental diseases, but the author intends it to be a guide to the nurse; and its value is more in its apt directions as to the course such an individual should pursue, under the difficulties that meet them, rather than an attempt to teach psychiatry. G. W. H.

Books Received

Common Symptoms of an Unsound Mind—by G. Rutherford Jeffrey, M.D., F.R.C.P.E. 8vo. 268 pages. Price 7s. 6d. net. Published by H. K. Lewis & Co. Ltd., 28 Gower Place, W.C.L., London, England.

Diagnostic Methods—by Herbert Thomas Brooks, A.B., M.D., F.A.C.P. Fourth edition. 109 pages with 52 illustrations. Price \$1.75. Published by C. V. Mosby Company, St. Louis, Mo.

A Manual of Proctology—by T. Chittenden Hill, Ph.B., M.D., F.R.C.S. 279 pages illustrated with 84 engravings. Price \$3.25. Published by Lea & Febiger, Philadelphia and New York.

Outlines of Palaeontology—by H. H. Swinnerton, D.Sc., F.Z.S., F.G.S., Professor of Geology at the University College, Nottingham. 420 pages, illustrated. Price 30s. net. Published by Messrs. Edward Arnold & Company, London, England.

The Smoke Inspector's Handbook—by Herbert G. Clinch. 8vo. 136 pages with 59 illustrations. Price 7s. 6d. net. Published by H. K. Lewis & Co. Ltd., London, England.

Diathermy and its Application to Pneumonia—by Harry Eaton Stewart, M.D. 12 mo. cloth. \$3.00 net. 210 pages, illustrated. Published by Paul B. Hoeber, New York City.

Mental Disorders—by Francis M. Barnes, Jr., M.A., M.D. Second edition. 295 pages. Price \$3.75. Published by the C. V. Mosby Company, St. Louis, U. S. A.

Pulmonary Tuberculosis—Its Diagnosis and Treatment—by John Guy, M.D. 307 pages with 51 illustrations. Price 16s. net. Published by Oliver & Boyd, Edinburgh, Scotland.

Diseases of the Skin—by Frank Crozer Knowles, M.D. Second edition. 595 pages with 229 illustrations and 14 plates. Price \$6.50. Published by Lea & Febiger, Philadelphia, Pa.

X-Rays: Their Origin, Dosage, and Practical Application—by W. E. Schall, B.Sc., London, F. Inst. 119 pages, illustrated. Price 5s. Published by John Wright & Sons Ltd., Stone Bridge, Bristol, England.

HEMOSTYL du DR. ROUSSEL

Pure Haemopoietique Serum

Hemostyl is a **horse serum** collected with all due precautions, at such times when the animal is at its maximum point of blood regeneration.

It is an ideal serum being both **Haemopoietic** (Haemogenic) (see Carnot, *Academie des Sciences*, Aug. 27th, 1906) and also **Haemostatic** (Weill, Carnot, *Rapport au 13th Congres de Medecine*, 1912).

Further, as Hemostyl is prepared from only young and healthy animals, it can be used in all cases **in which normal Horse Serum is indicated**, viz.—General or Local Leucocytosis.

The sterilisation of Hemostyl is secured by five intermittent operations at 50°C.

I

HEMOSTYL a haemopoietic agent Treatment of Anaemias

1.—Hemostyl Pure Serum.

Except in urgent cases, when subcutaneous injections can be given, the Routine method of taking the serum is either by the **mouth** or by the **rectum**. Taken this way Hemostyl possesses the great advantage of never being followed by the various annoying seric sequelae Erythema, Arthralgia, Seric Anaphylaxis.

Dose

One or two ampoules daily.

In cases of urgency, 30 cc. of the pure Serum should be given subcutaneously, to be followed by the routine method. Site of injection and Technique, the same as employed for anti-diphtheritic Serum.

There need be no hesitation to employ this method as the contingency of a seric reaction is negligible when compared with a precarious condition such as post-haemorrhagic anaemia.

Hemostyl Serum is supplied in boxes of 6 ampoules of 10 cc. each.

2.—Hemostyl Syrup.

Total Haemopoietic blood mixed with Saccharo-glycerine, Cocoa-vanilla syrup.

Bottle of 250 cc.

Two or three tablespoonfuls a day, either pure or in a little water.

3.—Hemostyl Tablets.

Haemopoietic total blood dried at a low temperature. In boxes of 45 Tablets.

Two tablets, three or four times a day, before meals. The tablets should be crunched and swallowed with a little cold water without allowing them to dissolve in the mouth.

II

HEMOSTYL a haemostatic agent Treatment of Haemorrhages

As a haemostatic, only the Liquid Serum in flask-phials is to be employed.

1.—External Haemorrhages.

Wounds, Epistaxis, Bleeding from Gums, Metrorrhagia.

Local tamponnage with gauze, wadding or lint soaked in Hemostyl Serum.

2.—Internal Haemorrhages.

Haemoptysis.	(a) Acute cases.
Haematemesis.	Subcutaneous injection of 30 cc. (3 flask-phials) to be repeated if necessary in 24 or 48 hours.
Melaena.	(b) Subacute cases.
Metrorrhagia.	Two to four flask-phials a day either by the mouth or rectum.
Enterorrhagia (typhoid, etc.)	(c) Local application should at the same time be adopted where possible—Metrorrhagia.

3.—Haemophilia.

Curative }
Preventive } Two to four flask-phials as above.

4.—**The Serum should be employed before surgical intervention** in cases where patients are suffering from diseases prone to cause bleeding.

Literature and Samples: J. I. EDDÉ, New Birks Bldg., Montreal

Treatment of Diabetes Mellitus—by Elliott P. Joslin, M.D. (Harvard), M.A. (Yale) Third edition. 784 pages, illustrated. Price \$8.00. Published by Lea & Febiger, Philadelphia, Pa.

Ophthalmological Society of Egypt—Bulletin of 1923. (Founded in December, 1902). 170 pages illustrated.

Urology—by Edward L. Keyes, M.D., Ph.D. 781 pages with one hundred and ninety illustrations and eighteen plates, four of which are coloured. Publishers, D. Appleton and Company, New York and London. Canadian Agents: Messrs. McClelland & Stewart.

A Manual of the Practice of Medicine—by A. A. Stevens, M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Eleventh edition. 12 mo. of 645 pages, illustrated. Cloth, \$3.50 net. Publishers, W. B. Saunders Company, Philadelphia and London, 1923. Toronto Agents: The J. F. Hartz Co., Limited.

Medical Biometry and Vital Statistics—by Raymond Pearl, Ph.D., Professor of Biometry and Vital Statistics, Johns Hopkins University. Octavo of 379 pages, illustrated. Cloth, \$5.00 net. Publishers, W. B. Saunders Company, Philadelphia and London. Toronto Agents: The J. F. Hartz Co., Limited.

Circulation in Health and Disease—by Carl J. Wiggers, M.D. Second edition. 662 pages, illustrated with 204 engravings. Price \$7.50. Published by Lea & Febiger, Philadelphia, Pa.

Clinical Diagnosis—by Laboratory Methods. A working manual of Clinical Pathology. By James Campbell Todd, M.D., Professor of Clinical Pathology, University of Colorado. Fifth edition. Octavo of 762 pages with 325 illustrations, 29 in colours. Cloth, \$6.00 net. Published by W. B. Saunders, Philadelphia and London. Toronto Agents: The J. F. Hartz Co., Limited.

Gynaecology—by William P. Graves, M.D., Professor of Gynaecology at Harvard Medical School. Third edition. Octavo volume of 936 pages with 388 half-tone and pen engravings and 146 microscopical drawings, 103 of the illustrations in colours. Cloth, \$9.00 net. Publishers, W. B. Saunders Company, Philadelphia and London. Toronto Agents: The J. F. Hartz Co., Limited.

Abt's Pediatrics—by 150 specialists. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Volume I. contains 1,240 pages with 284 illustrations. Volume II. contains 1,025 pages with 180 illustrations. Cloth, \$10.00 per volume. Published by W. B. Saunders Company, Philadelphia and London. Toronto Agents: The J. F. Hartz Co., Limited.

The Recording of Schoolroom Data on Communicable Diseases.—A simple, graphic method of recording schoolroom data on communicable diseases that admits of a close epidemiologic study of actual conditions is described by William F. Reasner, Minneapolis. The routine procedure of the division of public health of daily notification to the schools of the report or discovery of cases of communicable diseases was used. On the receipt of this notice in a school included in the study, the nurse made a visit to the room in which a child named in the notice was attending, and an inquiry was made of the teacher as to the exact seat occupied by this child. The abbreviation of the name of the disease concerned and the date of onset were then inserted in the space on the plat representing that seat in the schoolroom. A similar procedure was followed in the case of children excluded as contacts, and the fact of case or contact was differentiated by a symbol. Should the name of a pupil previously excluded as a contact be reported as a case, the fact was noted by symbol together with the date of onset of the contact case. Cases such as pediculosis, which are ordinarily discovered by the nurse, were noted on the plat at the time of discovery and exclusion from school. The date of return

to school was also noted on the plat. The routine practice of school nurses to attempt to discover the source of infection, and the lines of transmission of communicable diseases in the schools, were also used in this study. Such information as was obtainable was noted on the plat by connecting with a straight line those cases in which the pupils had a definite school association, such as contiguity of seating during class hours, or friendships involving close association during recess periods. Cases in which the pupils were known to have an association by reason of residence, neighbourhood or otherwise, not definitely connected with the school, were shown by a waved, connecting line between the squares representing seats on the plat. At the end of the semester, the plats from the schools studied were collected and tabulations made.—*Jour. Am. Med. Ass.*, Dec. 1, 1923

Epidemic (Lethargic) Encephalitis and Allied Conditions.—This article by Simon Flexner, New York, is the Frederick A. Packard Lecture of the Philadelphia Pediatric Society, read before the College of Physicians, Philadelphia, April 10, 1923. It is a complete survey of known facts with regard to this disease.—*Jour. Am. Med. Ass.*, Nov. 17, 1923.